

Televes®



Ref. 554902

EN DVB-T Encoder/Modulator & USB

User Manual

Index

1. Introduction	4
1.1 General description	4
1.2 Main Features	4
1.3 Contents	4
1.4 Blocks diagram	4
1.5 Technical specifications	4
2. Product description	5
2.1 Indicators and controls	5
2.2 Installation / Application	6
3. Operation	6
3.1 Button introduction	6
3.2 Management	7
3.3 General setting for main menu	8
4. TS Creator Software	10
4.1 Installation	10
4.2 Operation	10
4.3 File Management	11

Safety Instructions

WARNING: To prevent fire or electrical shock, do not expose the device to rain or moisture.

General Precautions

- Avoid placing the device next to central heating components and in areas of high humidity.
- Do not cover the device with elements that obstruct the ventilation slots.
- If the encoder modulator has been kept in cold conditions for a long time, keep it in a warm room minimum 2 hours before plugging into the mains.
- Mount the encoder modulator in vertical position with the connectors located on the top side.
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutes may result in fire, electric shock or other hazards.
- Safety check- Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the device is in proper condition.

Power precautions

- The encoder modulator is powered with a voltage of 12V DC. The power supply voltage must not exceed the recommended voltage, which otherwise may cause irreparable damage to the device and the invalidation of the warranty. Therefore:
 - Do not replace power supply with a voltage greater than 12V DC.
 - Do not connect the device to the power if the power cord is damaged.
 - Do not plug the device into mains supply until all cables have been connected correctly.
 - Do not cut the cord.

1. Introduction

1.1 General Description

554902 encoder & modulator (home use) is Televés' consumer product which allows audio/video signal input in TV distributions with applications in home entertainment, surveillance control, inns, restaurants, small shops, etc.

It is a device that allows to convert a composite video signal (with or without audio) into digital DVB-T COFDM signal and so distribute for the existing network.

The signals source could be from satellite receivers, CCTV cameras, DVD players, etc. Its output signal is to be received by a DVB-T standard TV, DVB-T STB etc.

With this DVB-T modulator is also possible to use a USB memory as signal source.

1.2 Main Features:

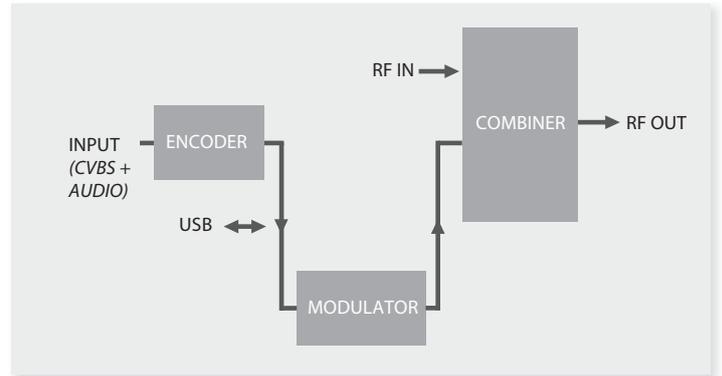
- DVB-T COFDM modulator
- MPEG-2 encoding
- RF frequency range 47-862MHz
- Bandwidth (6, 7 or 8 MHz)
- RF Loopthrough
- USB PVR and Playback (with loop function)
- Removable power supply (with EU/UK adapter)
- Easy to program via keyboard
- LCN mode selection support
- Advanced edition of parameters: service name, program name, program number, PMT PID, PCR PID, A/V PID, EIT event, TSID, ONID
- Color configuration: brightness, contrast, saturation, Hue.
- Upgrade by USB.

1.3 Contents

Verify that the following components are included in the packaging:

- 1 x DVB-T Encoder/Modulator ref.554902
- 1 x Power supply (with EU and UK adapter)
- 1 x RCA Cable
- Quick Guide

1.4 Blocks diagram



1.5 Technical specifications

Encoder		
Video	Encoding	MPEG-2 MP@ML(4:2:0)
	Interface	1 x CVBS (RCA)
	Resolution	720x576_50i (PAL); 720x480_60i (NTSC)
	Bit rate	1.000~19.000 Mbps
Audio	Encoding	MPEG1 Layer II
	Interface	1 x Stereo/mono (RCAs)
	Sample rate	48KHz
	Bit rate	64, 96, 128, 192, 256, 320, 384kbps
Modulator		
Standard	DVB-T COFDM	
Bandwidth	6M, 7M, 8M	
Constellation	QPSK, 16QAM, 64QAM,	
Code rate	1/2, 2/3, 3/4, 5/6, 7/8.	
Guard Interval	1/32, 1/16, 1/8, 1/4.	
Transmission Mode:	2K	
MER	≥42dB	
RF frequency	47~862MHz (1KHz step)	
RF output level	-16~ -36 dBm (73~93 dBµV), 0.1dB step	
RF loopthrough	5 - 900 MHz (10 dB attenuation)	
USB		
File System	FAT 32 - High Speed 2.0 (*)	
Memory Suggested	32GB ≤ Memory ≤ 500GB	
USB PVR	“.ts” files - Max. 2GB	
USB Playback	Only “.ts” files	
System		
Management	Local control: LCD + control buttons	
Language	English	
LCN Insertion	yes	
Upgrade	USB + JTAG	
General		
Power supply	12V DC 2A	
Power consumption	750mA	
Dimensions	172 x 122 x 50mm	
Weight	500g	
Operation temperature	0 ... 45 °C	

(*) Televés does not guarantee 100% compatibility with all USB devices.

2. Product description

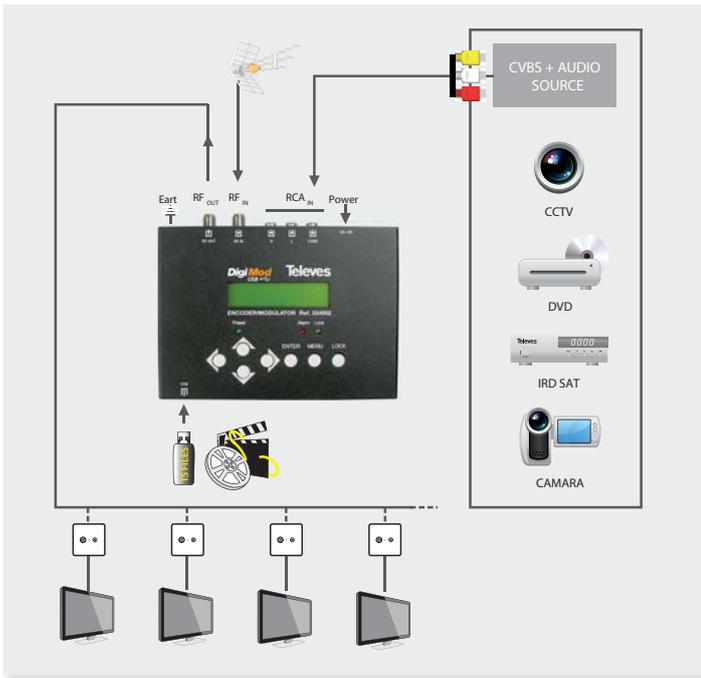
2.1 Indicators and controls



DC 12V	Power input
CVBS	Composited video input supporting NTSC and PAL
L/R channel	Stereo Left and Right audio channels
USB Port	Video Record, Playback and upgrade SW
RF in	to combine input RF signal (10 dB attenuation)
RF out	to distribute modulated signal (47-862 MHz, 73~93 dBμV)
Grounding	To connect the earth cable.

2.2 Installation/Application

1. Screw the encoder modulator where you want to install it. Left 10 cm of free space around from each other once the devices have been installed.
2. Connect cables to audio/video source. The signal source can be from a surveillance monitor, DVD, set-top box, CCTV and etc.
3. Connect cable to RF output to TV.
4. Connect the power to the wall outlet with the power adapter.



3. Operation

3.1 Button introduction

554902 Encoder Modulator is controlled and managed through the key board and LCD display.



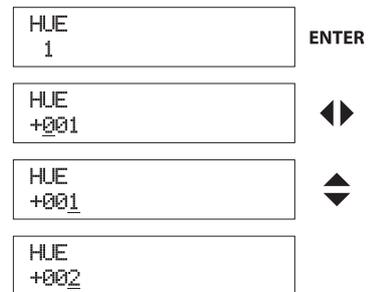
LCD Display – It presents the selected menu screen and the parameter settings. The backlight in the display is on when the power is applied.

LED – These lights indicate the working status

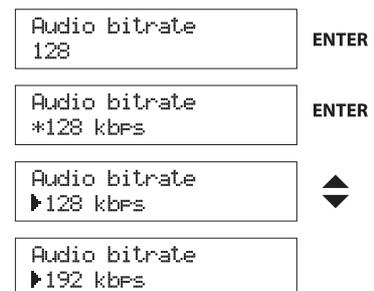
- **Power:** It lights on when the power supply is connected.
- **Alarm:** It lights on when there is error, such as the signal source loss.
- **Lock:** It lights on when the signal source connected and goes off when the signal lose.

◀/▶ / ▲/▼ buttons – Use these buttons to turn the screen pages, shift the target items by moving the triangle, or change the parameter settings in the program mode.

ENTER – Use this button to enter a submenu or save a new setting after adjustment; press it to start adjusting the value of certain items when the corresponding underline flash with Up and Down buttons;



Press it to activate the hidden selections and change the setting with Up and Down (or Left and Right) buttons.



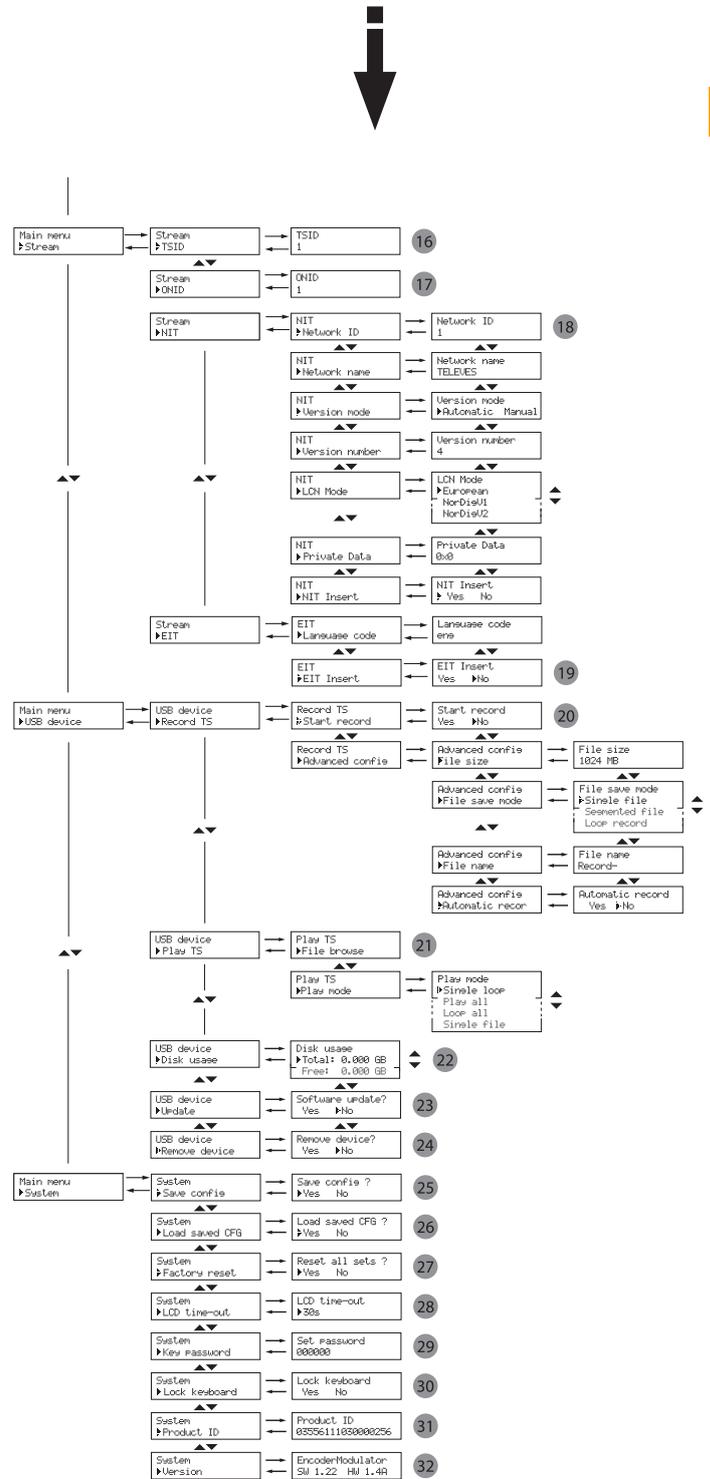
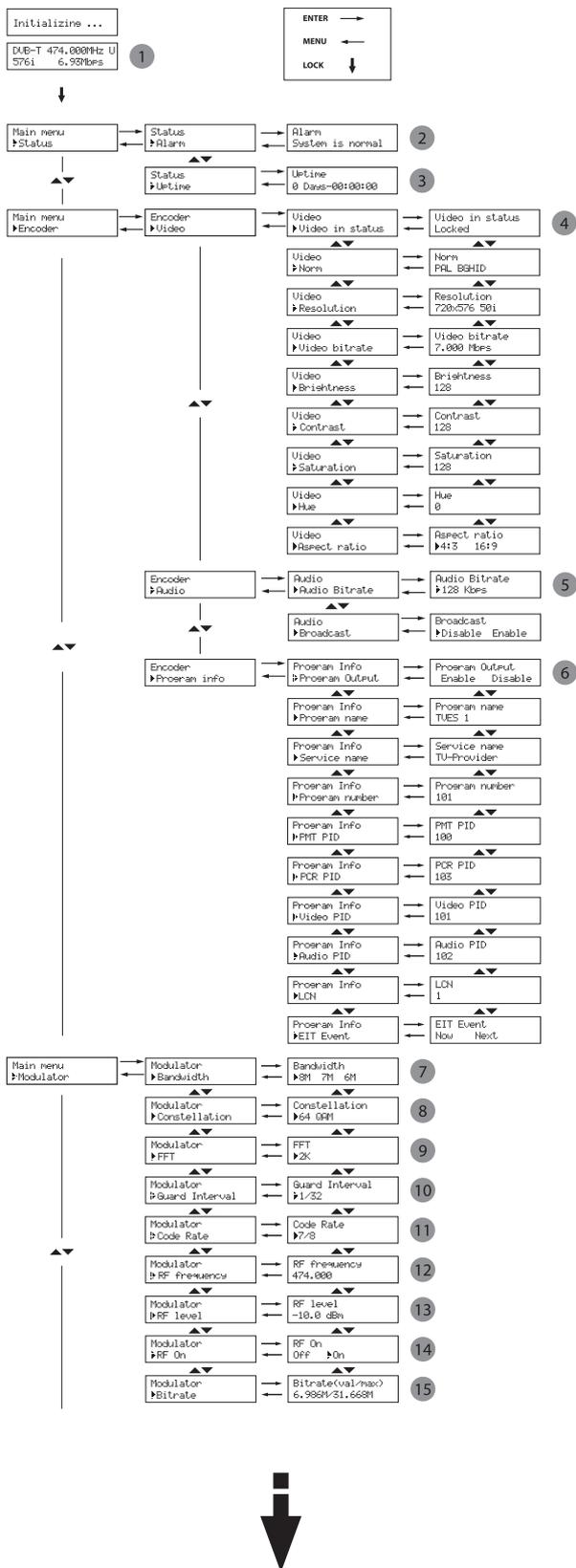
MENU – Press this button to step back.

LOCK – Locking the screen / cancelling the lock state, and entering the main menu after the initialization of the device. After pressing lock key, the system will question the users to save present setting or not. If not, the LCD will display the current configuration state.

When the power is connected, the LCD will start to initialize the program. The LCD menu goes as below chart.

3.2 Management

Switch On, then below status will be displayed, few seconds' initialization then open startup picture.



3.3 General setting for main menu

- 1 **DVB-T:** modulating standard; XX.XXX MHz: the current output frequency; 576i: video resolution of signal source; X.XX Mbps: the current encoding bit rate. **U:** symbol of the USB disk insertion.
- 2 **Alarm Status:** For example, if the CVBS cable disconnected, it will display Video 1 Not Lock under this menu.
- 3 **Uptime:** It displays the working time duration of the device. It times upon power on.
- 4 **Video Parameters:** User can enter the items respectively to view the video status and signal source resolution. User can also adjust values of rest items. (Bit rate: 1.000~19.000 Mbps; Brightness & Contrast & Saturation: 0-255; Hue: -128 - +127; Aspect Ratio: 4:3 or 16:9)
- 5 **Audio Bit rate:** Select audio bit rate among 64, 96, 128, 192, 256, 320, 384 kbps.

Broadcast: Enable – the output program will broadcast only audio without the picture; Disable – cancel broadcast mode to resume both audio and video.
- 6 **Program Information:** User can enable or disable the program output under menu Program Output. User can also enter the other items to edit the Service Name, Program Name, Program Number, and PIDs of PMT, PCR, Video and Audio, and edit LCN (Logical channel number). EIT Event – User can enter this menu to setup EIT (Event Information Table) for the current and next program event. The EIT contains Start Time, Duration, Event Name, and Start Year of the event. All the EIT information can be displayed on the TV screen on condition that the EIT is chosen to insert (see explanation 19).

- **NOTE:** When we use two or more modulators in the same instalation is necessary to edit the TSID and LCN values in order to be different in each unit.
- 7 **Bandwidth:** choose between 6M, 7M and 8M.
- 8 **Constellation:** DVB-T modulator contains 3 constellation modes – 64 QAM, QPSK and 16 QAM.
- 9 **FFT (Transmission Mode):** 2K.
- 10 **Guard Interval:** Select among 1/32, 1/16, 1/8 and 1/4.
- 11 **Code Rate:** It refers to FEC-Forward Error Correction rate. It contains 1/2, 2/3, 3/4, 5/6 and 7/8.

- **NOTE:** The different combination of bandwidth, constellation, guard interval and code rate (FEC) will form a different output code rate. Please see table 1 (recommended MPEG-2 Code Rate).
- 12 **RF Frequency:** Adjust it at range of 47 to 862MHz. Set it according your regional situation or inquire your local services.
- 13 **RF Level:** Adjust it at range of -16~ -36dBm.
- 14 **RF On:** User can choose to turn on or turn off the RF under this menu.
- 15 **Bit Rate:** User can read the current modulating bit rate and the maximum bit rate
- 16 **TSID:** (Transport Stream ID) User can view or adjust after enter this menu.
- 17 **ONID:** (Original Network ID)-User can view or adjust after enter this menu.
- 18 **NIT:** (Network Information Table) NIT table is a very important table for describing the network and TS. User can enter the submenus displayed and edit the values or select the LCN (Logical channel number) mode, and choose whether to insert the NIT. If user chooses to insert the NIT, information (Network ID, Network Name, LCD Mode, Private Data and LCN number of the program mentioned in explanation 6) will be added to the transport stream.

- **NOTE:** when the Private Data is set as 0*0, it is invalid. For example in UK is necessary to edit the value of Private Data to: 0x233A.
- 19 **EIT:** EIT Insert - As mentioned above (6), the event information table can be chosen whether to insert into the TS or not under this menu. If yes, the

EIT information set above (6) will be displayed on the TV screen. Language Code – to set the EIT language For example, code of the English language is eng. If you set the code as eng, the EIT displayed will be in English language.

- 20 **USB Device (Record and Play):** This modulator allows to record or playing (“ts” files) through the USB port. Please connect a USB memory with the following specifications:

File System: FAT32 - High Speed 2.0 (*)

Memory Suggested: 32 ≤ Memory ≤ 500GB

Televés recommends the use of high quality USB devices.

(*) Televés does not guarantee 100% compatibility with all USB devices.

20 Record TS

Connect the signal source, select “Start Record” and choose “Yes” to start recording.

Advanced Config:

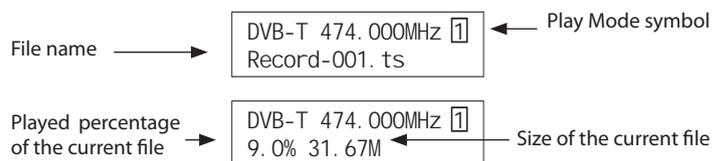
- **File size:** User can set the file size for the *.ts to be recorded. A single file can be maximum 2000MB in size.
- **File save mode:** there are three diferent modes:
 - *Single file* (For example, when the file size is set as 1000M and the *.ts is recorded up to 1000M, it automatically stops recording TS.).
 - *Segmented file* (For example, when the file size is set as 1000M and the *.ts is recorded up to 1000M, it automatically saves the files and continues to record TS and save it to next file until the USB memory is full.).
 - *Loop record:* (it automatically saves the files and continues to record TS and save it to next file. When the USB memory is full, it replaces the previous files.)
- **File name:** User can edit the name for the *.ts files to be recorded. For example, if users name it “Record-”, it will give name to the saved *.ts files “Record-001.ts”, “Record-002.ts”...“Record-00N.ts”.
- **Automatic Record:** User can choose between record the TS automatically or manually.

21 Play TS

- **File browse:** Please select the file that you want to play and press the “Enter” key to start play.
- **Play mode:** Select a play mode as you needed before playing the *.ts file.

The user can create “.ts” videos for playback, please see chapter “TS Creator Software”. when the modulator reproduce a “.ts” video created is necessary make a new search in the televisions.

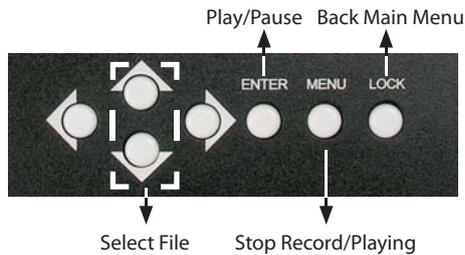
When the *.ts is being playing, the LCD modulator will present a playing interface as shown below.



Play Mode symbol

- 1 Single loop
- A Play all
- A Loop all
- 1 Single file

At this moment (recording or playing TS files), the keys has other functions:



Note: If the modulator fails you should restart the equipment.

22 Disk Usage

In this option, user can see the USB capacity (total and free) of the USB disk.

23 Update

With this option is possible to upgrade the software version of the modulator. Select "Yes" to update the modulator with the update file present in the USB disk.

24 Remove Device

Please select the "Yes" option to remove the USB disk safely.

25 Save Config: Yes/No-to save/give up the adjustment of setting.

26 Load Saved CFG: Yes/No-to load/ not to load the saved configuration.

27 Factory Reset: Yes/No-choose/not choose the factory's default configuration.

28 LCD time-out: A time limit that LCD will light off. Choose among 5s, 10s, 45s, 60s, 90s and 120s (seconds).

29 Key password: Please set the password (six digits: 000000).

30 Lock Keyboard: Choose Yes to lock the keyboard, when the keyboard will not applicable to avoid unexpected operations. Choose No to unlock the keyboard. (If forgetting your password, please use the universal code "005599").

31 Product ID: User can view the serial number of this device. It is read-only and unique

32 Version: It displays the version information of this device. Encoder Modulator: the name of the device; SW: software version number; HW: hardware version number. User can also press ENTER again to view the published time of this device.

EN

Table 1 Recommended MPEG-2 Code Rate

Modulation Constellation	FEC	6MHz Bandwidth				7MHz Bandwidth				8MHz Bandwidth				
		Guard Interval				Guard Interval				Guard Interval				
		1/4	1/8	1/16	1/32	1/4	1/8	1/16	1/32	1/4	1/8	1/16	1/32	
QPSK	1/2	The weak ability of error-correcting and anti-interference in this area											6.03	
	2/3					6.03	5.80	6.45	6.83	7.03	6.64	7.37	7.81	8.04
	3/4	6.22		6.58	6.78	6.53	7.25	7.68	7.91	7.46	8.29	8.78	9.05	
	5/6	6.22	6.91	7.31	7.54	7.25	8.06	8.53	8.79	8.29	9.22	9.76	10.05	
	7/8	6.53	7.25	7.68	7.91	7.62	8.46	8.96	9.23	8.71	9.68	10.25	10.56	
16QAM	1/2	7.46	8.29	8.78	9.04	8.70	9.67	10.24	10.55	9.95	11.06	11.71	12.06	
	2/3	9.95	11.05	11.70	12.06	11.61	12.90	13.66	14.07	13.27	14.75	15.61	16.09	
	3/4	11.19	12.44	13.17	13.57	13.06	14.51	15.36	15.83	14.93	16.59	17.56	18.10	
	5/6	12.44	13.82	14.63	15.08	14.51	16.12	17.07	17.59	16.59	18.43	19.52	20.11	
	7/8	13.06	14.51	15.36	15.83	15.24	16.93	17.93	18.47	17.42	19.35	20.49	21.11	
64QAM	1/2	11.19	12.44	13.17	13.57	13.06	14.51	15.36	15.83	14.93	16.59	17.56	18.10	
	2/3	14.92	16.58	17.56	18.09	17.41	19.35	20.49	21.11	19.91	22.12	23.42	24.13	
	3/4	16.79	18.66	19.76	20.35	19.59	21.77	23.05	23.75	22.39	24.88	26.35	27.14	
	5/6	18.66	20.73	21.95	22.62	21.77	24.19	25.61	26.39	24.88	27.65	29.27	30.16	
	7/8	19.59	21.77	23.05	23.75	22.86	25.40	26.89	27.71	26.13	29.03	30.74	31.67	

4. TS Creator Software

The user can create “.ts” videos containing pictures, music and videos with our “TS Creator” software on a PC and save them into the USB memory.

The **TS Creator** application support the followings formats:

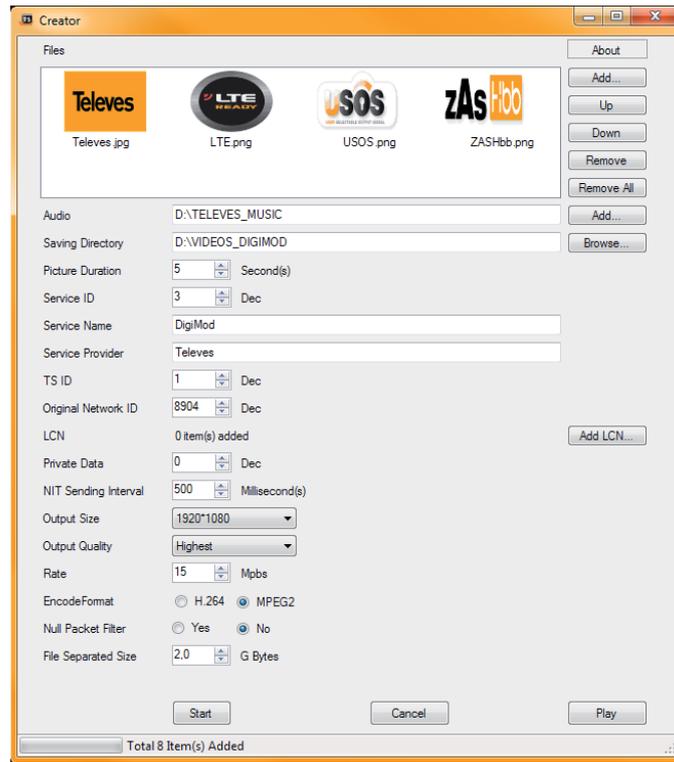
Image: JPG, PNG, BMP, GIF

Audio: MP3, WAV

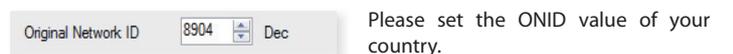
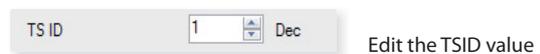
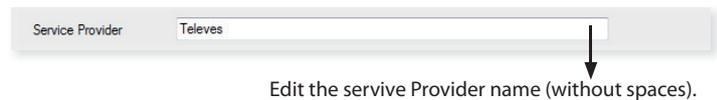
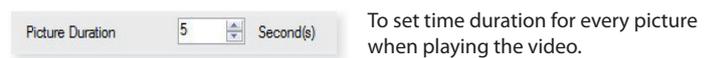
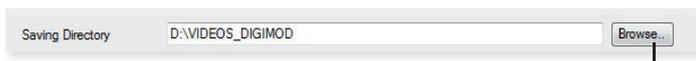
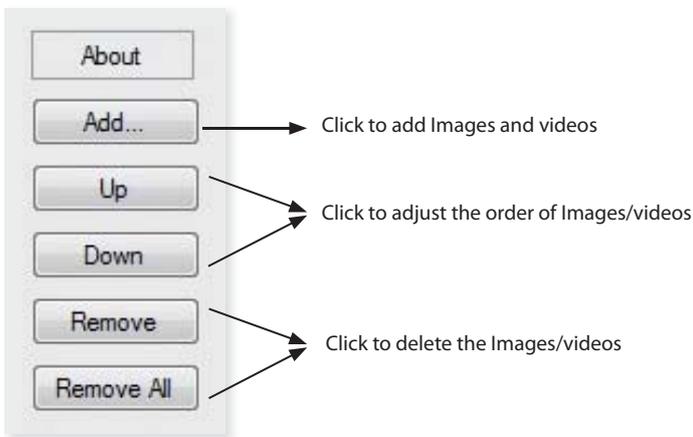
Video: WMV, MPG, MP4, TS, AVI

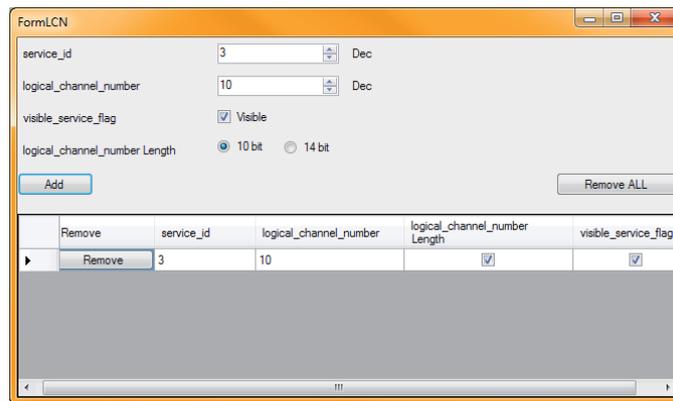
4.1 Installation

1. Download our **TS Creator** software to your PC to get the installer and its auxiliary routine.
2. If your PC hasn't installed **Net Frame 2.0** yet, double-click  “NetFx20SP2_x86.exe” until complete the installation.
3. Double-click  **Setup.exe** application to install the **TS Creator** and generate a desktop shortcut.



4.2 Operation





LCN

If you want to add LCN please select the "ADD LCN" option.

- Service ID - Set the same value that was previously edited.
- Logical Channel Number -Set the LCN value that you want.
- Visible Service Flag - Please Enable or disable this option.
- Logical Channel Number Length - Please select between 10bit or 14bit.

At the end, select the "Add" option

Private Data Dec
 Set the "Private Data" value of your country. If your country not use this parameter, set this value to: "0". For example in UK is necessary to edit the value to: 9018.

NIT Sending Interval Millisecond(s)
 To set the interval value.

Output Size
 To set the resolution for the output video.

Rate Mbps
 The video is transformed based on VBR (Variable Bit Rate). The number set here represents the highest bit rate for the output video and bit rate will varies under the number.

EncodeFormat H.264 MPEG2
 Users can select a encode format here according to the standart of receiving terminal.

Null Packet Filter Yes No
 Users can filter the null packet to boost the video's effect bit rate.

File Separated Size G Bytes
 A single video can be maximum 2.0 GB in size. (DIGIMOD cannot play bigger than 2GB)

After setting all the parameters, click **Start** to start the transformation. Click "OK" when it prompts "The operation completed normally."

Cancel Click this button to stop the transformation before the operation completed.

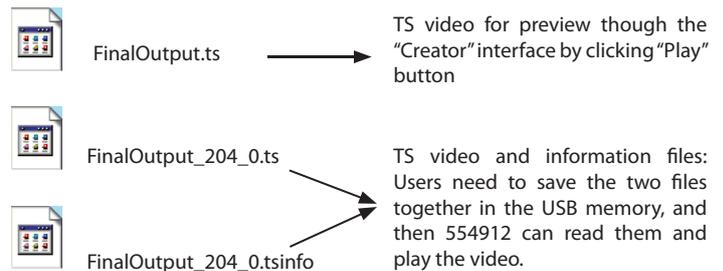
Play After finishing the transform operation, users can click this button to play the generated TS video.

4.3 File Management

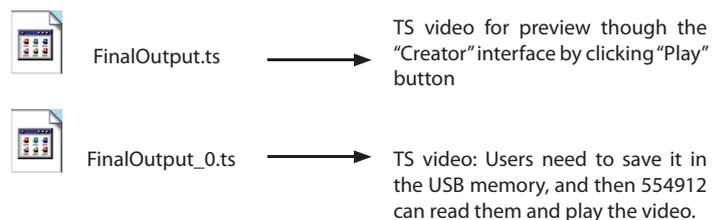
After finishing the transformation, users can find out the videos files generated according the Saving Directory. For example, we save the video in "D:\VIDEOS_DIGIMOD" so we can find it in Disk D\Folder VIDEOS_DIGIMOD.

■ Management:

1. Three files will be generated if the Null Packet has been filtered.



2. Two files will be generated if the Null Packet has not been filtered.



■ Remarks:

- All the files names are automatically generated.
- Rename the files before creating a new video to avoid covering the previous files.
- If you rename "FinalOutput-204-0.ts" or "FinalOutput-204-0.tsinfo", always keep the names the same (Extension excluded) and then 554912 can read them and play the video.

Televes®

DECLARATION OF CONFORMITY N° 140313134953

DECLARACIÓN DE CONFORMIDAD
DECLARAÇÃO DE CONFORMIDADE
DECLARATION DE CONFORMITE
DICHIARAZIONE DI CONFORMITÀ
DEKLARACJA ZGODNOŚCI
DECLARATIE DE CONFORMITATE
KONFORMITÄTSEKTLÄRUNG
KONFORMITÄTSEKTLÄRUNG
VASTAVUSE SERTIFIKAAT
ATBILSTĪBAS DEKLARĀCIJA

KONFORMITÄTSEKTLÄRUNG
ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΣΥΜΜΟΡΦΩΣΗΣ
FÖRSÄKRAN OM ÖVERENSSTÄMMELSE
VAATIMUSTENMUKAISUUSVAKUUTUS
ΑΤΤΙΚΤΙΕΣ ΔΕΚΛΑΡΑΚΙΙΑ
ДЕКЛАРАЦІЯ СООТВЕТВІЯ
MEGFELŐLŐSÉGI NYILATKOZAT
BEKREFTELSE
ДЕКЛАРАЦІЯ ВІДПОВІДНОСТІ
PROHLÁSENÍ O SHODĚ

Manufacturer / Fabricante / Fabricante / Fabricant / Fabbricante / Fabrikant / Κατασκευαστής / Tillverkare / Valmistaja / Producent / Gamintojas /
Изоготовитель / Producator / Gyártó / Fabrikant / Produzent / Fabrikant / Виробник / Valmistaja / Ražotājs / Výrobce:

Televes S.A.

Rua Benéfica de Conxo, 17 - 15706 - Santiago de Compostela - Spain

Declare under our own responsibility the conformity of the product / Declara bajo su exclusiva responsabilidad la conformidad del producto / Declara sob sua exclusiva responsabilidade a conformidade do produto / Declare sous notre propre responsabilité la conformité de ce produit / Dichiaro sotto la sua esclusiva responsabilità la conformità del prodotto / Wir übernehmen die Verantwortung für die Konformität des Produktes / Πιστοποιούμε με δικιά μας ευθύνη την συμμόρφωση του προϊόντος / Försäkrar om överstämme enligt tillverkarens eget ansvar för produkten / Vakuutamme yksinomaan omalla vastuullamme tuotteen yhdenmukaisuus / Oświadczyam na własną odpowiedzialność zgodność wyrobu / Deklaruojame savo atsakomybe, kad produktas yra atitinkamas / Заявляем с полной своей ответственностью о соответствии продукта / Declaram pe propria raspundere ca produsul este in conformitate cu cerintele esentiale si celalalte prevederi aplicabile / Saját felelősségünkre kijelentjük, hogy a termék megfelel / Erklærer under vores eget ansvar overensstemmelse for produktet / Erklærer under vårt eget ansvar overensstemmelsen for produktet / Wij nemen de verantwoording voor de conformiteit van het product / Заявляю з повною своєю відповідальністю що до відповідності продукту / Кіннїтїме тооте vastavust / Deklarē ar pilnu savu atbildību par produkta atbilstību / Prohlašuje na vlastní odpovědnost shodu výrobku:

Reference / Referencia / Referência / Référence / Articolo / Artikelnummer / Δήλωση / Referens / Referenssi / Numer Katalogowy / Produktu numeris /
Αρτυκλ / Referinta / Termékszám / Varennummer / Varennummer / Artikelnummer / Αρτυκλ / Viide / Atsauce / Reference:

554902

Description / Descripción / Descrição / Description / Descrizione / Beschreibung / Περιγραφή / Beskrivning / Kuvaus / Opis / Produktu aprašas / Onucanue /
Descriere / Leírás / Beskrivelse / Beskrivelse / Beschrijving / Onuc / Kirjeldus / Apraksts / Popis:

Digimod domestic encoder/modulator DVBT II A/V +USB wall

Trademark / Marca / Marca / Marque / Marchio / Handelsmarke / Μάρκα / Varumärke / Tavaramerki / Marka / Prekės ženklas / Торговая марка / Marca /
Márkanév / Varemarke / Varemärke / Handelsmerk / Торговельна марка / Kaubamärk / Preču zīme / Značka:

Televes

With the requirements of / Con los requerimientos de / Com as especificações de / Avec les conditions de / Con i requisiti di / Die Voraussetzungen erfüllen / Με τις απαιτήσεις του / Enligt följande bestämmelser / Seuraavien määrätyksien / Zgodność z wymogami / Atitinka reikalavimus / Τρεβοσασικυμ / In conformitate cu / Az alábbi követelményeknek / Med bestemmelserne / Med bestemmelsene / In overeenstemming met / відповідно до вимог / tingimustel / prasībām / S požadavky na:

• Low Voltage Directive 2006 / 95 / EC

• EMC Directive 2004 / 108 / EC

Following standards / Con las normas / Com as normas / Selon les normes / Con le norme / Folgende Anforderung / Ακόλουθα πρότυπα / Följande standard / Seuraavien standardien / Zastosowanie następujących norm / Pagal standartus / Следующих стандартов / Respecta următoarele standarde / A következő szabványoknak / Följgende standarder / Följgende standarder / Volgende richtlijnen en normen / Наступних стандартів / Järgmiste standardite / sekojšiem standartiem / Následující normy:

EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011, EN 55022:2010, EN 55024:2010

Santiago de Compostela, 13/3/2014



José L. Fernández Carnero
Technical Director

televes.com