

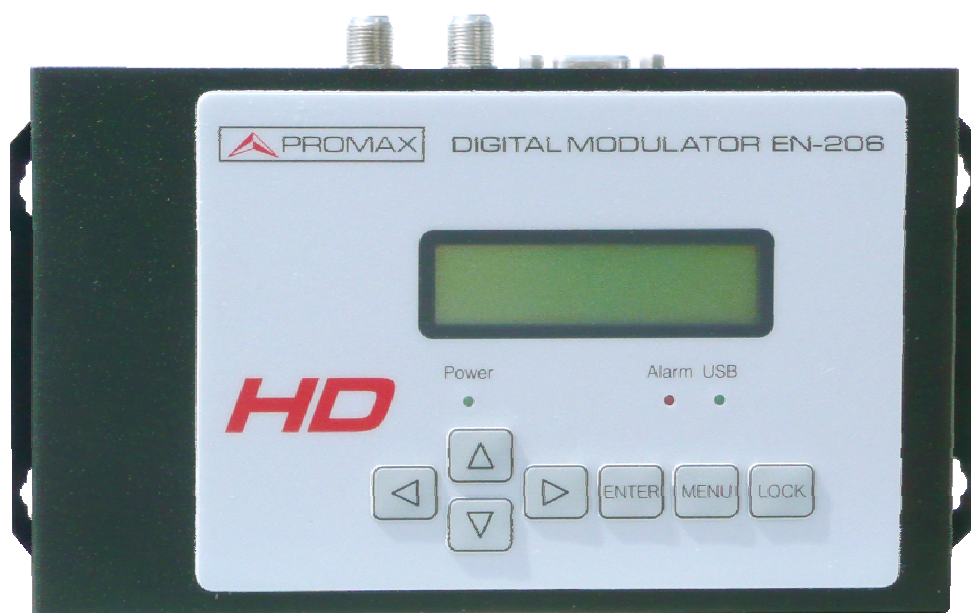
EN-206

HIGH DEFINITION MULTI-STANDARD MODULATOR

DVB-T

DVB-C - J83.B - J83.C

ATSC-T



SAFETY NOTES

Read the user's manual before using the equipment, mainly "**SAFETY RULES**" paragraph.

The symbol  on the equipment means "**SEE USER'S MANUAL**". In this manual June also appear as a Caution or Warning symbol.

WARNING AND CAUTION statements June appear in this manual to avoid injury hazard or damage to this product or other property.

USER'S MANUAL VERSION

Version	Date	Software Version
3.0	June 2015	3.1

SAFETY RULES

- * **The safety could not be assured if the instructions for use are not closely followed.**
- * When using some of the following accessories use **only** the **specified** ones to ensure safety.:
 - External DC charger
 - Power cord
- * No use the external DC power cord this is damaged.
- * Do not connect the external DC power until all cables are connected properly.
- * In el manipulate external DC power supply.
- * Observe all **specified ratings** both of supply and measurement.
- * Remember that voltages higher than **70 V DC** or **33 V AC rms** are dangerous.
- * Use this instrument under the **specified environmental conditions**.
- * 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 device in vertical position with the connectors located on the top side.
- * **Do not obstruct the ventilation system of the instrument.**
- * To prevent fire or shock hazard, do not expose this appliance to rain or moisture.
- * Use for the signal inputs/outputs, appropriate low radiation cables.
- * Follow the cleaning instructions described in the Maintenance paragraph.
- * The operator is not allowed to intervene within the team: Any other change on the equipment should be carried out by qualified personnel.
- * Mechanical handling / electric unit can cause damage. Do not connect the appliance to the mains before or during assembly.

* Symbols related with safety:

	DIRECT CURRENT		ON (Supply)
	ALTERNATING CURRENT		OFF (Supply)
	DIRECT AND ALTERNATING		DOUBLE INSULATION (Class II protection)
	GROUND TERMINAL		CAUTION (Risk of electric shock)
	PROTECTIVE CONDUCTOR		CAUTION REFER TO MANUAL
	FRAME TERMINAL		FUSE
	EQUIPOTENTIALITY		 EQUIPMENT OR COMPONENT TO BE RECYCLED

Descriptive Examples of Over-Voltage Categories

Cat I Low voltage installations isolated from the mains.

Cat II Portable domestic installations.

Cat III Fixed domestic installations.

Cat IV Industrial installations.

TABLE OF CONTENTS

1 INTRODUCTION	1
1.1 Description	1
1.2 Equipment Details	2
1.3 Installation	3
1.4 Cascade Installation	5
2 OPERATIONS AND MANAGEMENT	6
3 MENU TREE	8
3.1 DVB-T	9
3.2 DVB-C	11
3.3 ATSC-T	13
3.4 Parameters definition	15
4 USB PORT	20
4.1 TS Recorder and Save	20
4.1.1 Description	20
4.1.2 Operation	21
4.2 TS Playback	23
4.3 USB upgrade	24
4.4 Disk Usage	24
4.5 Remove Device	25
5 TS CREATOR SOFTWARE	26
5.1 Installation	26
5.2 Operations of "TS Creator"	27
5.3 File Management	28
6 WEB-SERVER OPERATION	30
6.1 Login	30
6.2 Operation	31
7 SPECIFICATIONS	41
8 MAINTENANCE	44
8.1 Cleaning Recommendations	44
9 APPENDIX	45



HIGH DEFINITION MULTI-STANDARD MODULATOR EN-206



1 INTRODUCTION

1.1 Description

The **EN-206** which allow audio/video signal input in TV distributions with applications in home entertainment, surveillance control, hotel Digital Signage, shops etc. It is an all-in-one device integrating MPEG4 AVC/H.264 encoding and modulating to convert input signals to RF out.

The USB port is designed to record encoded video (TS) and save it in ts files in the USB Keys or Hard Disks, and then the ts files can be playback through the USB port. The ts files can be also generated on a computer with a specific software.

The signals source could be from satellite receivers, closed-circuit television cameras, blu-ray players, and antenna etc. its output signal is to be received by selected standard TVs or STBs etc.

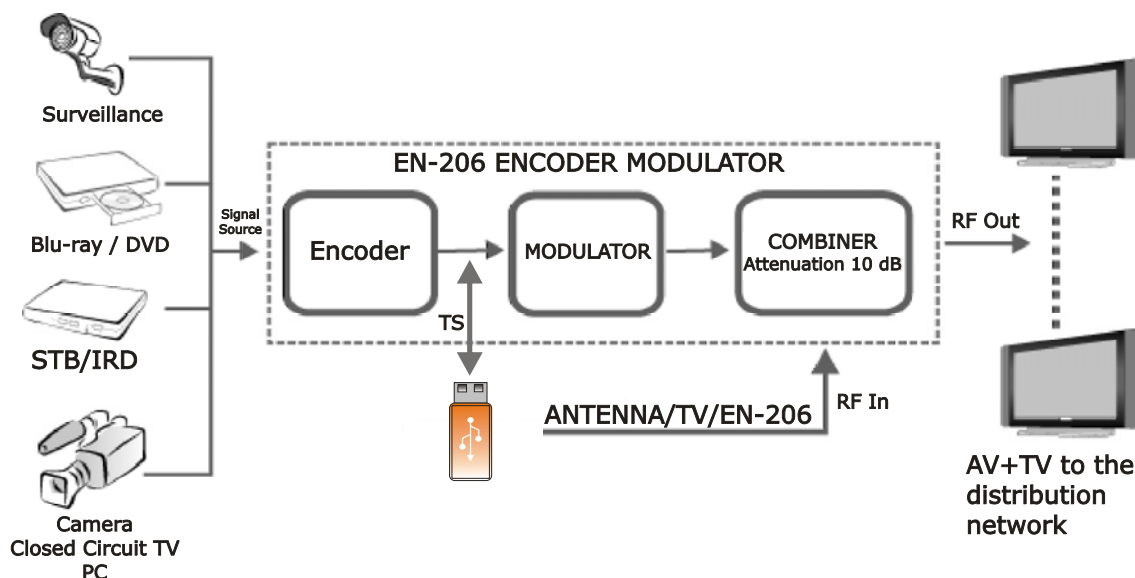


Figure 1. System Connection Chart.



1.2 Equipment Details

■ Front View

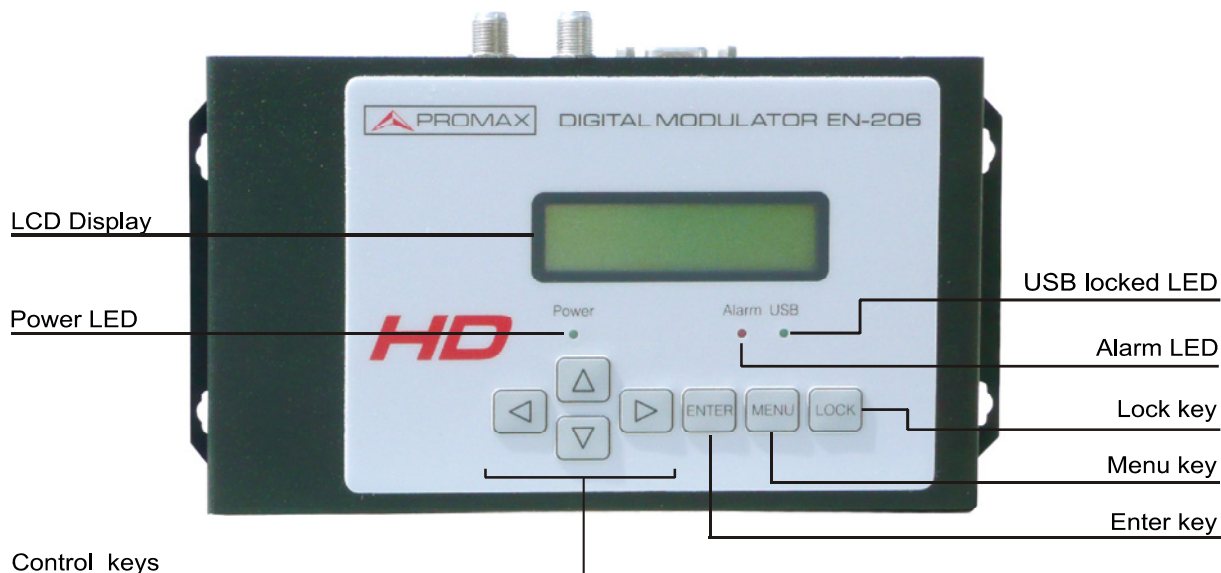


Figure 2.

■ Up View

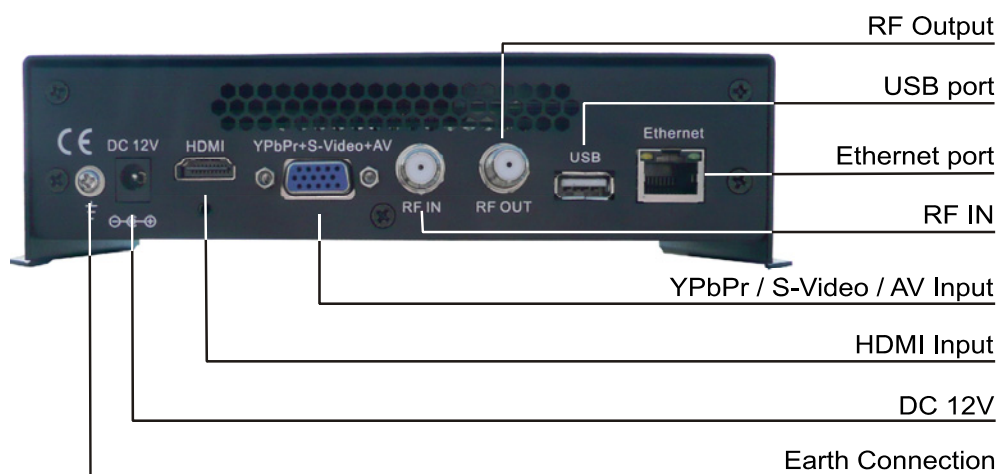


Figure 3.

- **Grounding:** To connect the earth cable.
- **DC 12V:** Power Input.
- **HDMI:** HDMI stream input supporting HD signals.
- **YPbPr / S-Video / AV:** YPbPr / S-Video / AV signal input through a VGA adapter cable.
- **RF in:** RF Loop-through input.



- ▶ **RF Output:** RF output to distribute modulated signal.
- ▶ **USB Port:** For video record, playback and system upgrade.
- ▶ **Ethernet Port:** For web-server management.

1.3 Installation

- 1 Mount and tighten the screws and plugs to secure the unit to the wall. Left 10 cm of free space around from each unit.
- 2 Connect the signal input in the respective connectors. The signal source can be from a surveillance monitor, DVD, set-top box, CCTV and etc.
- 3 Optionally, connect the loop-through RF input coaxial cable.
- 4 Connect cable to RF output to STB/TV.
- 5 Power supply connection: a) Connect the earth cable; b) Connect the power plug to the unit mains connector; c) Connect the power plug to the mains socket.

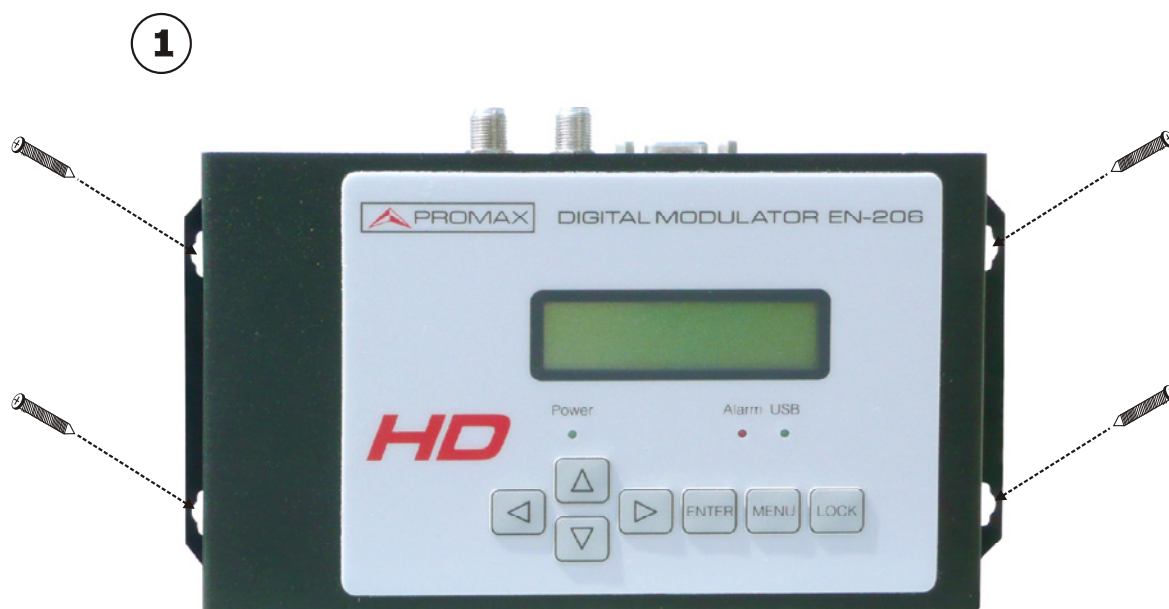


Figure 4.

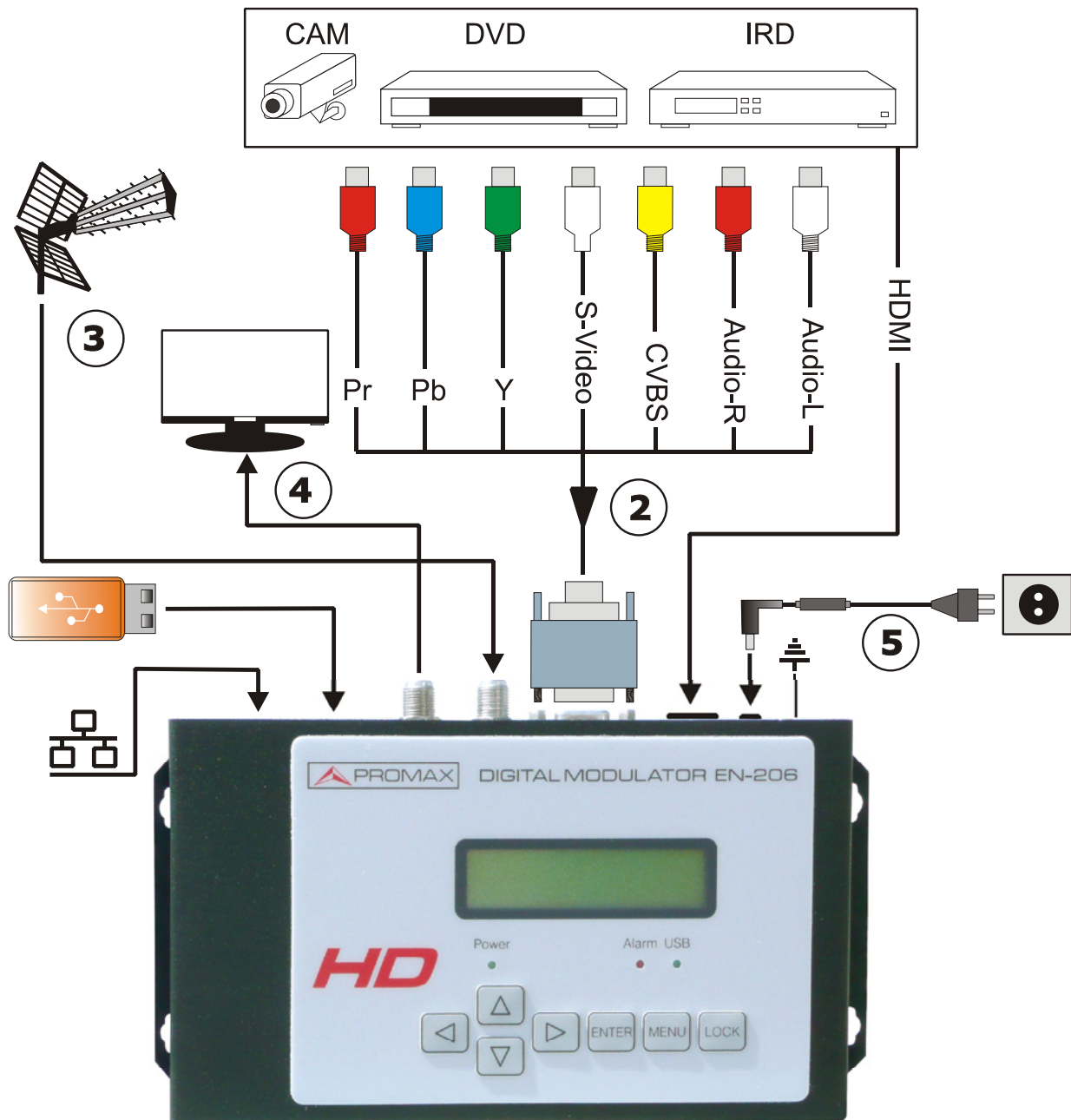


Figure 5.

1.4 Cascade Installation

EN-206 unit has 1 TV signal to RF output encoded as Digital TV signal.

Several **EN-206** units can be cascaded in order to increase the capacity. The maximum capacity of a series of N units is 1xN incorporated TV signals. To cascade 2 or more units, connect the RF output of the preceding unit to the TV input (loop-through) of the next unit (see right illustration).

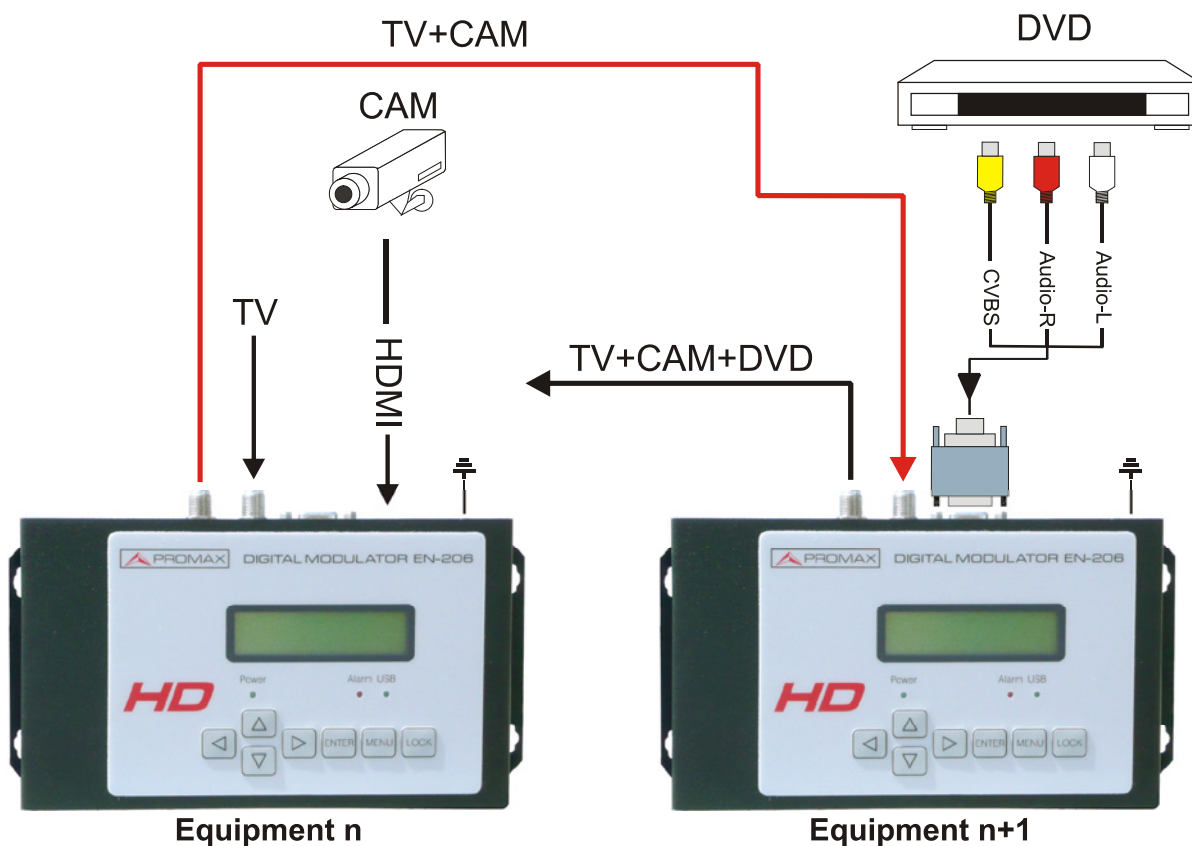


Figure 6.



2 OPERATIONS AND MANAGEMENT

EN-206 is controlled and managed through the key board and LCD display.



Figure 7.

► LCD Display:

It presents the selected menu 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.
- **USB:** It lights on when the USB device is properly connected and blocks out when the USB device gets removed.

► Left / Right / Up / Down 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.



Figure 8.

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



Figure 9.

► 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.

After the initialization of the device, press LOCK to unlock the keyboard. Then you will be able to browse in the menu tree.

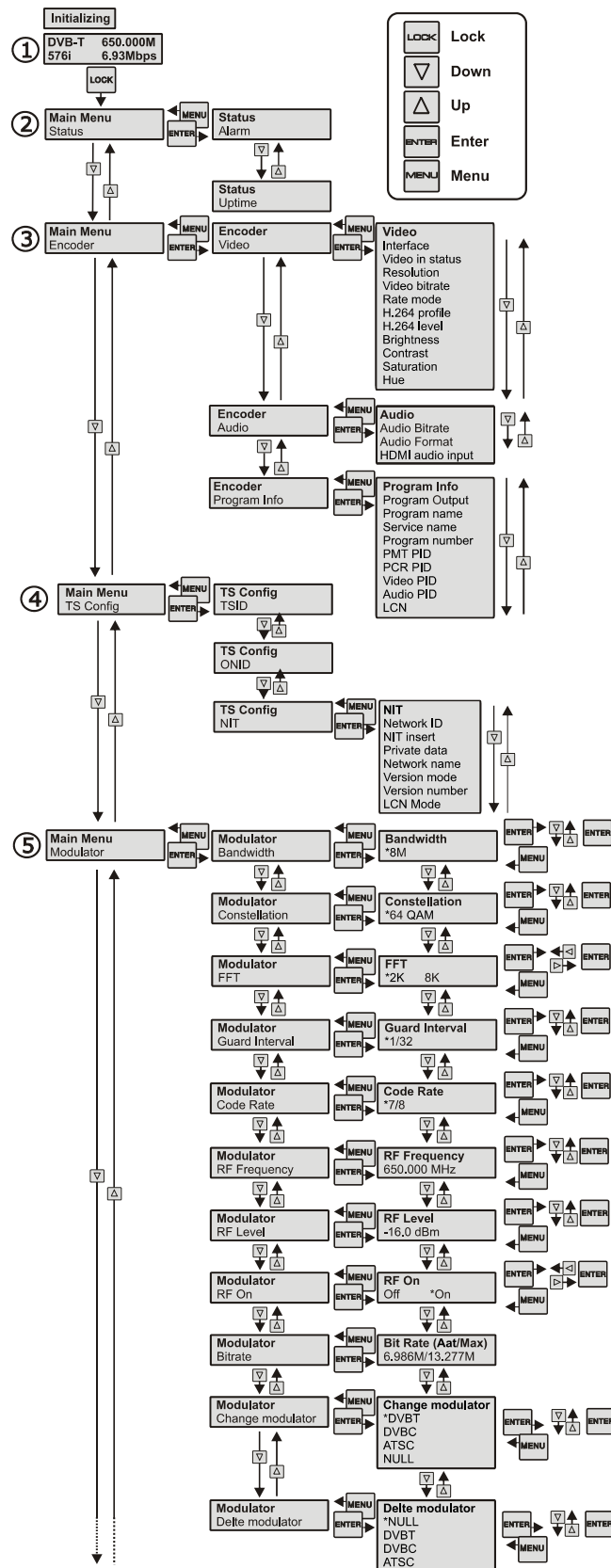


3 MENU TREE

When the power is connected, the LCD will start to initialize the program. After the initialization of the device, press LOCK to unlock the keyboard. Then you will be able to browse in the menu tree.

The LCD menu goes as below chart. Numbers on the menu refers to the numbers on the menu tree.

3.1 DVB-T



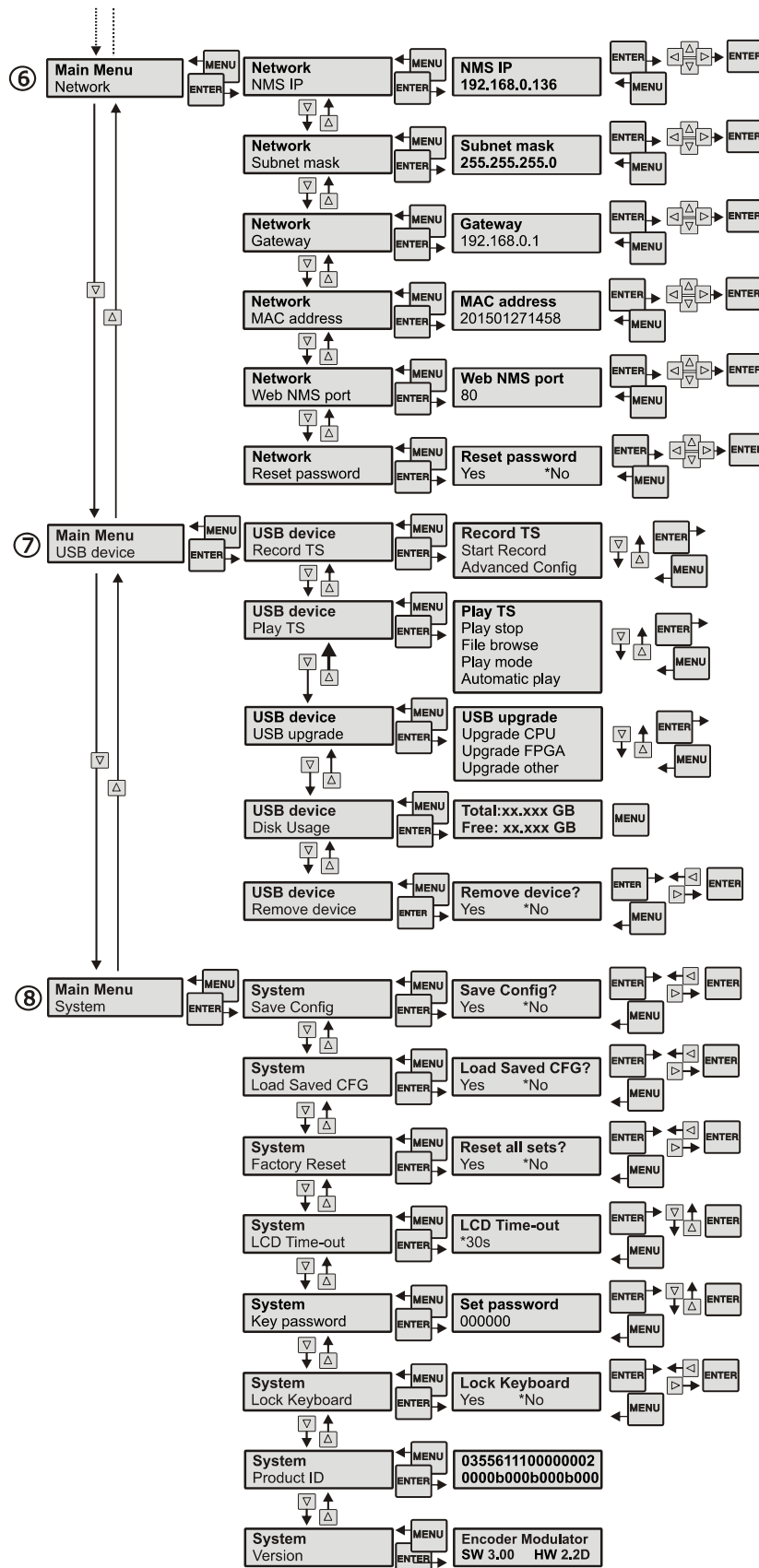
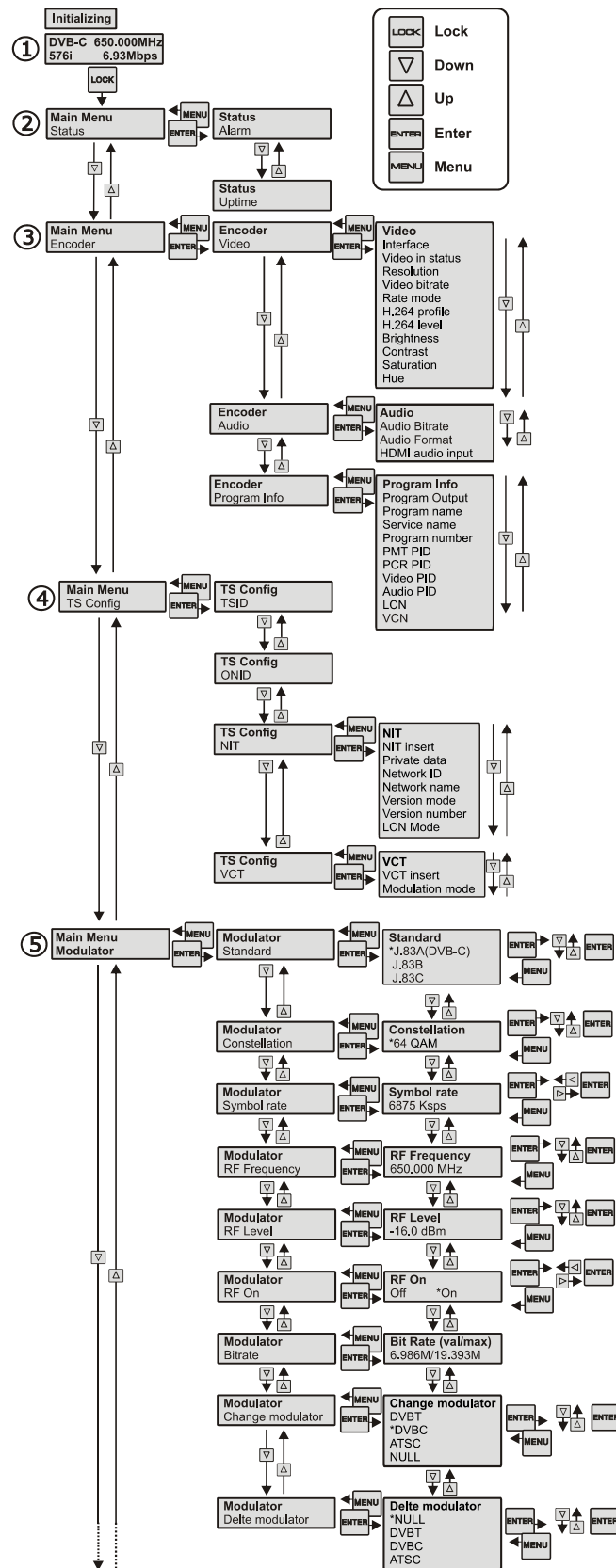


Figure 10. DVB-T menu tree.

3.2 DVB-C



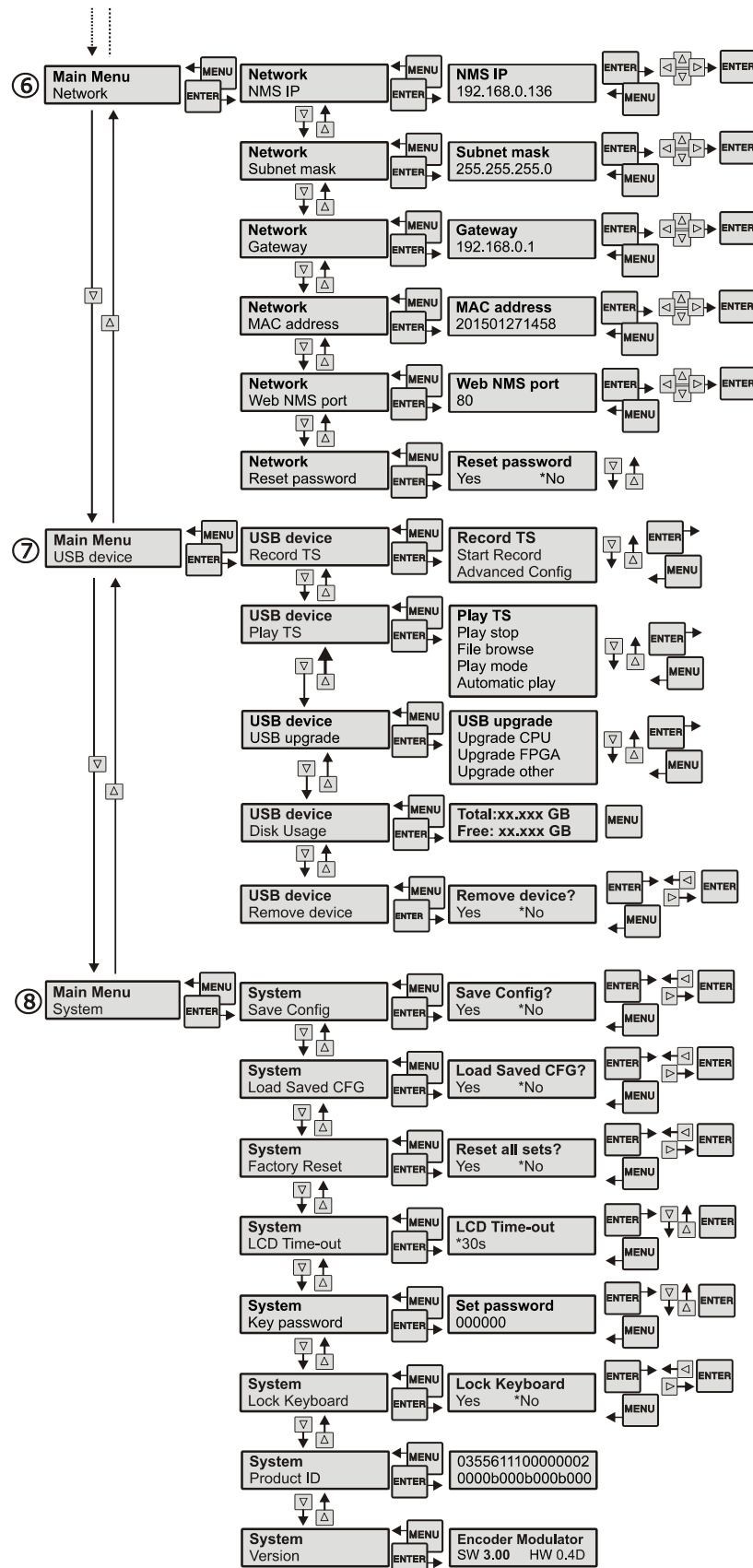
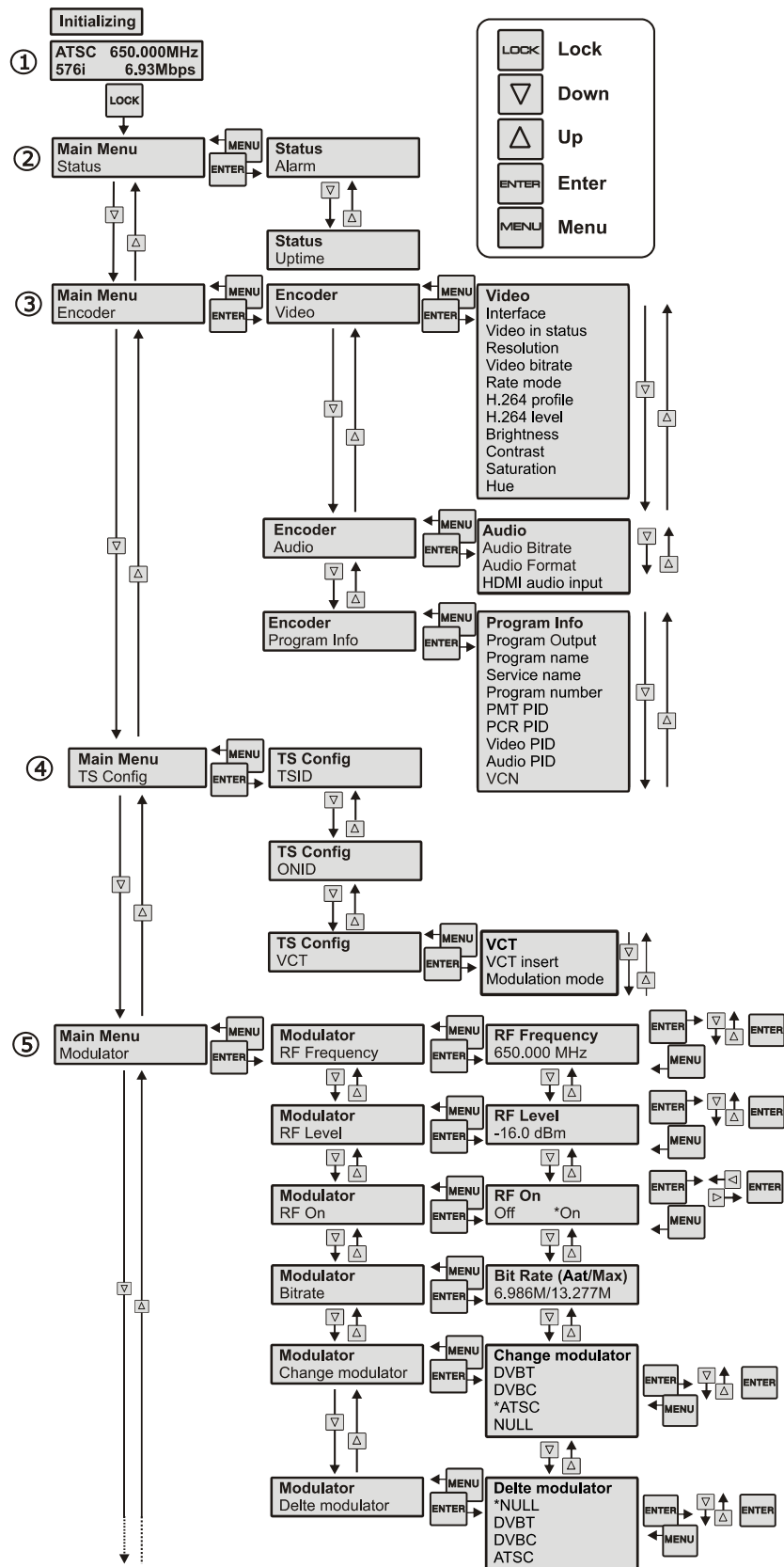


Figure 11. DVB-C menu tree.

3.3 ATSC-T



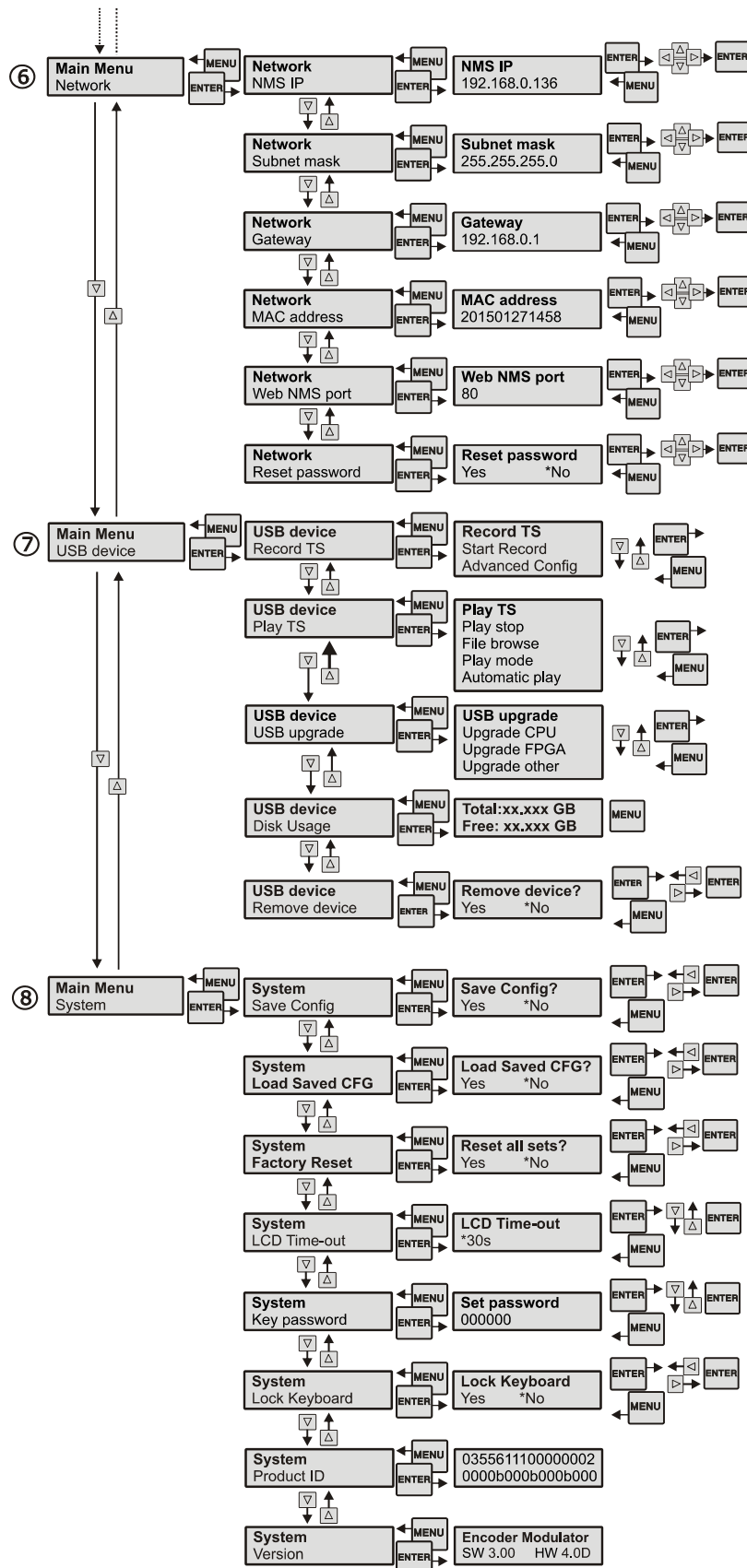


Figura 12. ATSC-T menu tree.



3.4 Parameters definition

(1) Start Screen:

- **DVB-T / DVB-C / ATSC:**

Modulating standard.

XX.XXX MHz: The current output frequency.

576i: Video resolution of signal source.

X.XX Mbps: The current encoding bit rate.

(2) Status:

- **Alarm:**

It displays alarm messages. For example, if the CVBS cable disconnected, it will display Video 1 Not Lock under this menu.

- **Uptime:**

It displays the working time duration of the device. It times upon power on.

(3) Encoder:

- **Video:**

User can enter the items respectively to set video parameters.

- **Interface:** Select a right interface type from the options provided. The device then can automatically search the signal and starts to encode.
- **Resolution:** Signal source resolution, read-only.
- **Video bitrate:** Adjust in range of 1.000~19.000 Mbps.
- **Rate Mode:** This unit user can choose CBR or VBR.

User can also adjust values of rest items (**H.264 profile**, **H.264 level**, **Brightness**: 0-128 & **Contrast**: 0-255 & **Saturation**: 0-128; **Hue**: -128 - +127)

- **Audio:**

- **Audio Bitrate:** Select audio bit rate from the options provided. Different audio format has different bit-rate range. See specification table for details.
- **Audio format:** Select audio format among MPEG2, MPEG2-AAC and MPEG4-AAC.
- **HDMI audio input:** Choose to input HDMI audio or not.



- **Program Info:**

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).

The option to edit VCN (virtual channel number) is also available for DVB-C and ATSC modulation.

(4) TS Config:

- **TSID** (Transport Stream ID):

User can view or adjust after enter this menu.

- **ONID** (Original Network ID):

User can view or adjust after enter this menu.

- **NIT** (Network Information Table) (only for DVB-T and DVB-C):

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, LCN 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.

- **VCT** (Virtual Channel Table) (only DVB-C):

VCT is the virtual channel table that provide information for all virtual channels in a transport stream like: major and minor channel numbers, short channel name, and information for navigation and tuning. User can choose the modulation mode and if insert or not the table.

**(5) Modulator:**

- **Bandwidth** (only for DVB-T)
Choose between 6M, 7M and 8M.
- **Constellation** (only for DVB-C and DVB-T):
DVB-T modulator contains 3 constellation modes – 64 QAM, QPSK and 16 QAM.

DVB-C modulator contains 3 constellation modes 16 QAM, 32 QAM, 64 QAM, 128 QAM and 256 QAM.
- **FFT** (Transmission Mode) (only for DVB-T)
Select between 2K and 8K.
- **Guard Interval** (only for DVB-T):
Select among 1/32, 1/16, 1/8 and 1/4.
- **Code rate** (only for DVB-T):
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 refer to appendix.
- **Standard** (only for DVB-C):
Select among J.83A (DVB-C), J.83B and J.83C.
- **Symbol rate** (only for DVB-C):
User can select the symbol rate.
- **RF Frequency:**
Adjust it at range of 30 to 999 MHz. Set it according your regional situation or inquire your local services.
- **RF level:**
Adjust it at range of -16~ -36 dBm.
- **RF On:**
User can choose to turn on or turn off the RF under this menu.
- **Bitrate:**
User can read the current modulating bit rate and the maximum bit rate.



- **Change modulator:**

User can select the modulation standard at this menu in accordance with the TV standard used to receive the output RF. After selecting the Modulation standard, user needs to restart the device.

- **Delete modulator:**

User can choose to delete modulation mode(s) which you may never use from the device.



CAUTION: The deleted modulation mode(s) cannot be restored without the right upgrade software from the factory. In such case, ask the factory for help.

(6) Network:

- **NMS IP:**

To configure IP address here (by default 192.168.0.136).

- **Subnet Mask :**

To configure subnet mask here (by default 255.255.255.0).

- **Gateway:**

To configure gateway here (by default 192.168.0.1).

- **MAC Address:**

To view MAC address here.

- **Web NMS Port (Web Port):**

To configure web port here (by default 80).

- **Reset password:**

It resets the password.

(7) USB device:

Please refer to chapter "USB port" for details.

(8) System:

- **Save Config?:**

Yes/No-to save/give up the adjustment of setting.

- **Load Saved CFG?:**

Yes/No-to load/ not to load the saved configuration.

- **Reset all sets?:**

Yes/No-choose/not choose the factory's default configuration.



- **LCD Time-out:**

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

- **Set password:**

User can set a 6 digital password used to unlock the keyboard.

- **Lock keyboard:**

Choose Yes to set a password and lock the keyboard, then the keyboard will be locked and cannot be applicable. It is required to input the password to unlock the key board. This operation is one-off. (If forgetting your password, please use the universal code "000000".)

- **Product ID:**

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

- **Version:**

It shows information of the device.

Encoder modulador: The name of the device.

SW: Software version number.

HW: Hardware version number.



4 USB PORT

Using a USB flashdrive connected to the USB port it can perform several functions, which are described in the following sections.

4.1 TS Recorder and Save

4.1.1 Description

► TS Recorder:

EN-206 can encode the source video to *.ts files and save them through the USB flash drive.

Connect the signal source to **EN-206** and start encoding process.

Start the record process and save the TS generated to the USB flash drive.

► TS Playback

Insert the **USB** flash drive with *.ts videos in **EN-206** and play back the content in an easy way.

A single video can be up to 2G in size and multi videos can be played on a loop.

► *.ts Video Creation Software

Users can also create *.ts videos containing pictures, videos and music with our *Creator* software on a PC and save them into the USB flash drive.

Drag the files to "Creator" application. Formats supported include:

Image:	JPG, PNG, BMP, GIF.
Audio:	MP3, WAV.
Video:	WMV, MPG, MP4, TS, AVI.

Start the conversion process to generate *.ts videos

For more details see chapter "TS Creator Software".



USB Flash Drive Specifications Required:

- * **Standard:** High speed 2.0
- * **File system:** FAT 32

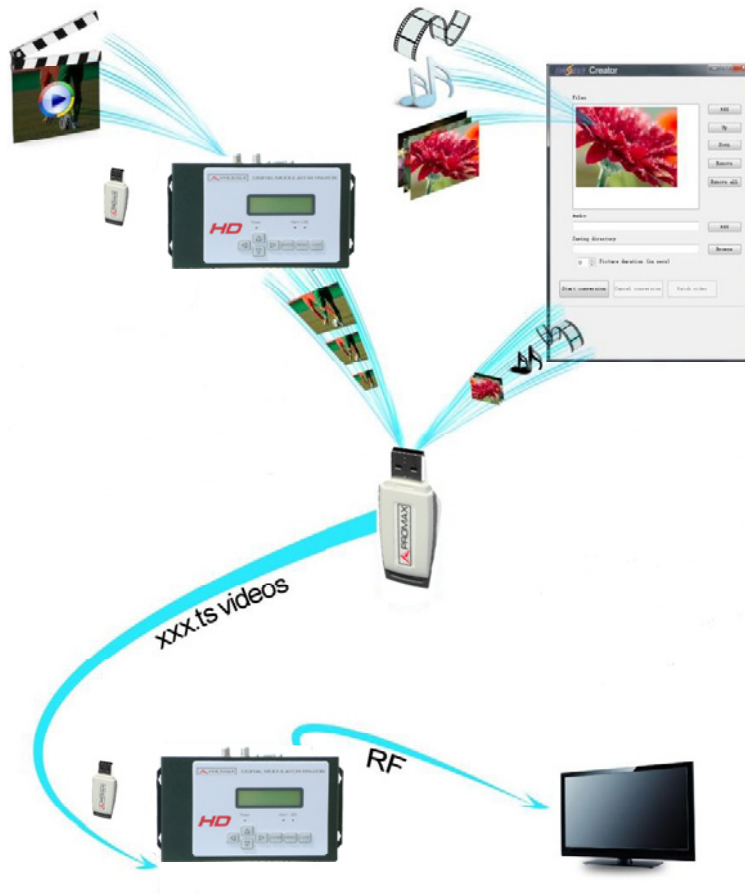


Figure 13.

4.1.2 Operation



Figure 14.



- 1** Connect the signal source, enter "**Start Record**" and choose "**Yes**" to start recording the encoded TS.
- 2** Advanced Config:
 - ▶ **File size:**

Users can set the file size for the *.ts to be recorder. A single file can be maximum 2000 MB in size.
 - ▶ **Filter null PKT:**

Users can decide whether to filter the null packet for the *.ts files to be recorded.
 - ▶ **Filter save mode:**

There are 3 modes provided:

 - **"Single file"**: For example, when the file size is set as 1000 MB and the *.ts is recorded up to 1000 MB, it automatically stops recording TS.
 - **"Segmented file"**: For example, when the file size is set as 1000 MB and the *.ts is recorded up to 1000 MB, 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:**

Users can enter this menu to edit 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:**

Users can chose whether to set **EN-206** record the TS automatically or manually.

4.2 TS Playback

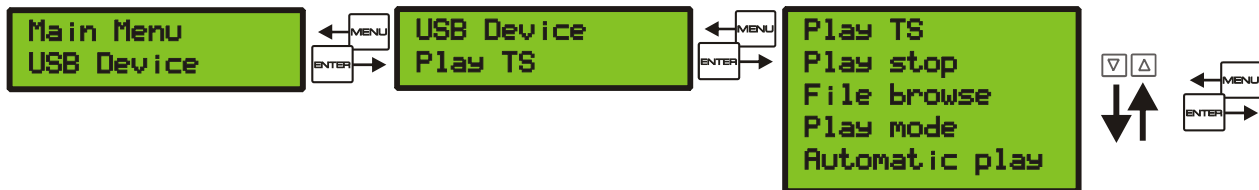


Figure 15.

- 1 **Play stop:** Choose “Yes” to stop TS play. Choose “No” to start TS play.
- 2 **File browse:** There is a video list under this menu, choose one file and press “Enter” button to start play.
- 3 **Play mode:** User can select a play mode for the saved *.ts files as hended before playing the *.ts file.

When the *.ts is being playing, **EN-206** LCD will present a playing interface as shown below.

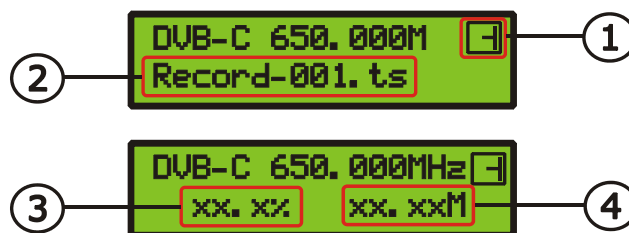


Figure 16.

- 1 Symbol of play-mode.



Single loop



Play all



Loop all



Single file

- 2 File name being playing.
- 3 The played percentage of the current file.
- 4 The size of the current file.



At this time, the key board also plays a different rule:

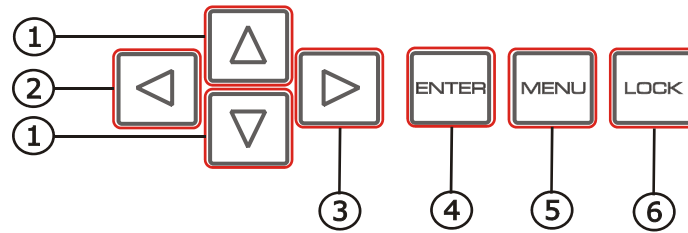


Figura 17.

- ① Select file.
- ② Rewind.
- ③ Forward.
- ④ Play/Pause.
- ⑤ Stop Playing.
- ⑥ Step back to main menu.

- ④ **Automatic play:** When the auto mode is enabled, the device will automatically play after USB connected. Otherwise user needs to click "Start play" button to start.

4.3 USB upgrade



Figure 18.

Choose one item to be updated and press Enter to confirm. Keep the update file stored in the USB device in the name of "Encoder Modulator-XXX.tar.gz" (XXX = FPGA or CPU according to the component to be updated).

4.4 Disk Usage



Figure 19.

Users can enter this menu to view the USB total and free disk memory.



4.5 Remove Device



Figure 20.

Choose "**Yes**" to safely remove the **USB** disk. **EN-206** will then automatically resume encoding and playing the program input from the encoder module.



5 TS CREATOR SOFTWARE

EN-206 encoder modulator has a function to create TS videos with the software associated with the product, which is available on the PROMAX download page. Users can create *.ts files containing images, videos and audios in a simple and intuitive way, and play them on a television through **EN-206** usb port.

Supported format files are:

Image:	JPG, PNG, BMP, GIF
Video:	MP4, WMV, AVI, MPG, TS, MKV
Audio:	MP3, WAV

5.1 Installation

- 1 Access download are "Software and firmware" at the PROMAX website and select your equipment in the drop down menu. It will appear all the software for that equipment.
- 2 Download our "TS Creator" software package on your PC to get the installer and its auxiliary routine.
- 3 Occasionally, if your PC hasn't installed "Net frame 2.0" yet, double-click "NetFX20SP2_x86.exe" until complete the installation.
- 4 Double-click "Setup.exe" application to install the "TS Creator" and generate a desktop shortcut.



5.2 Operations of "TS Creator"

Double-click the "Creator" shortcut icon, it will trigger an operation interface like below:

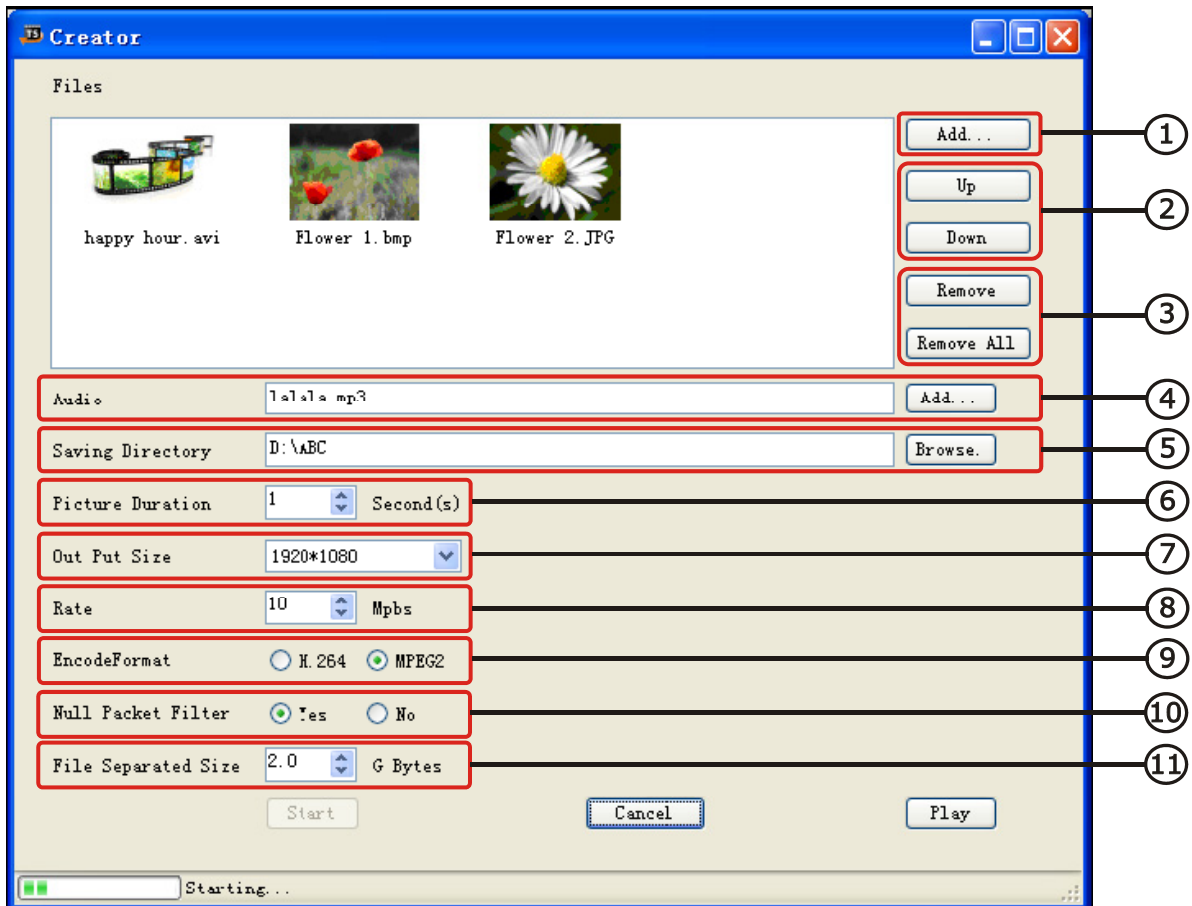


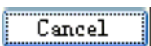
Figure 21.

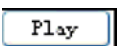
- ① Click to add images and videos.
- ② Click to adjust the order of Images/Videos.
- ③ Click to delete the Images/Videos.
- ④ Click to add audios.
- ⑤ Click to set a save path for the TS video to be created.
- ⑥ To set time duration for every picture when playing the video.
- ⑦ To set the resolution for the output video.
- ⑧ 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.



- 9 Users can select a encode format here according to standard of receiving terminal.
- 10 Users can filter the null packet to boost the video's effect bit rate.
- 11 A single video can be maximum 2.0 GB in size. (EN-206 cannot play a video bigger than 2 GB).

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

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

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

5.3 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:\ABC" so we can find it in Disk D\Folder ABC.

► Management:

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

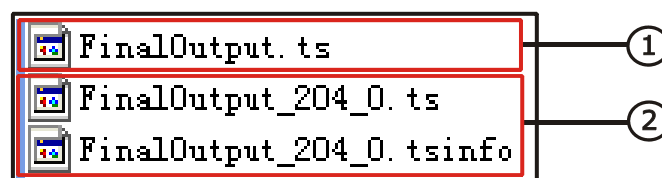


Figure 22.

- A File TS video for preview through the "Creator" interface by clicking "Play" button.
- B File TS video and information files: Users need to save the two files together in the USB memory, and then **EN-206** can read them and play the video.



- 2 Two files will be generated if the Null Packet has been filtered.

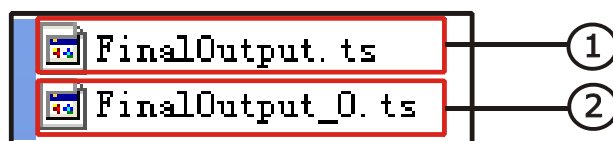


Figure 23.

- A File TS video for preview through the “Creator” interface by clicking “Play” button.
- B File TS video: Users need to save it in the USB memory, and then EN-206 can read it and play the video.

► **Remarks:**

- All the file 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 sep the names the same (Extensión excluded) and then **EN-206** can read them and play the video.



6 WEB-SERVER OPERATION

In addition to using front buttons to control the encoder modulator and USB device, users can also perform the same operation in an easier way with the web Brower in the PC (Personal Computer).

6.1 Login

The default IP address of this device is 192.168.0.136. (We can modify the IP through the front panel.)

Connect the PC and the encoder modulator with a net cable, and use ping command to confirm they are on the same network segment.

I.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 1 to 254 except 252 to avoid IP conflict).

Use web browser to connect the device with PC by inputting the device's IP address in the browser's address bar and press Enter.

It will display the Login interface. Input the Username and Password (Both the default Username and Password are "admin".) and then click "**LOGIN**" to start the device setting.

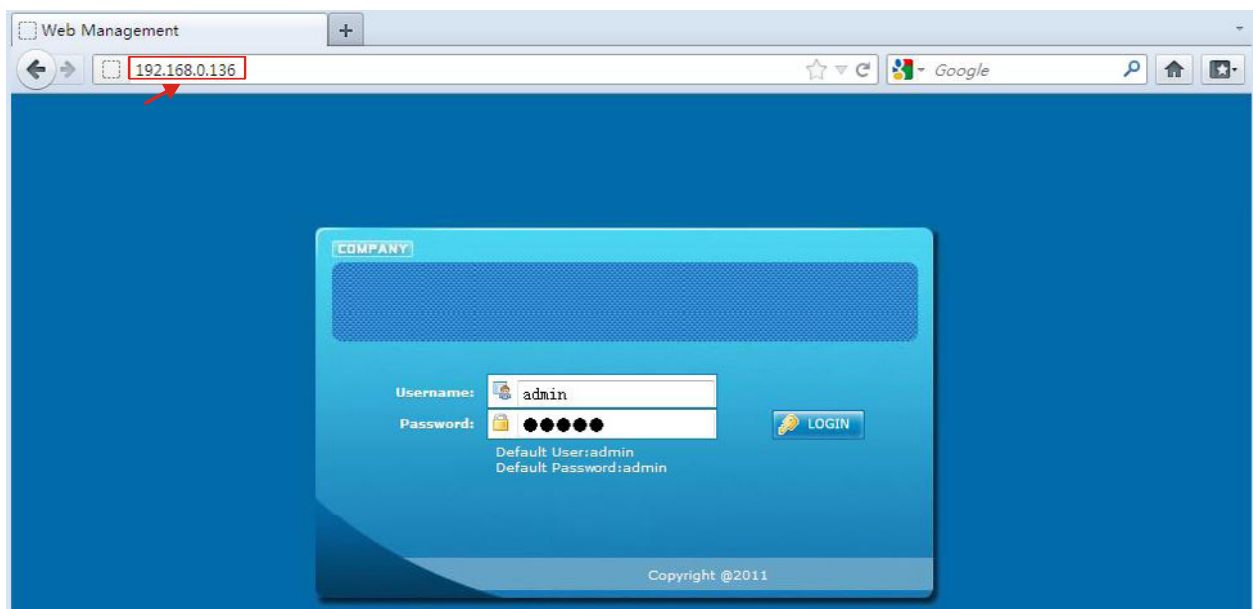
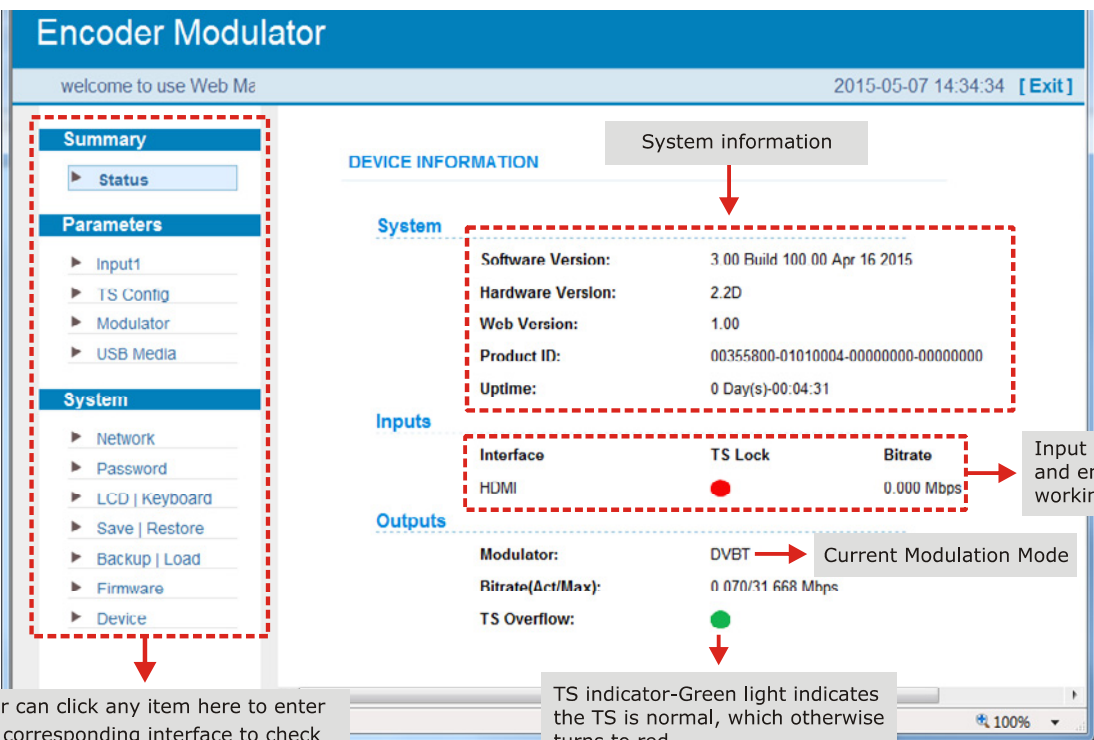


Figure 24.



6.2 Operation

When we confirm the login, it displays the WELCOME interface as figure below where users can have an overview of the device's system information and working status.



The screenshot displays the 'Encoder Modulator' Web Management Interface. The interface includes a sidebar menu on the left with sections: Summary (Status), Parameters (Input1, TS Config, Modulator, USB Media), and System (Network, Password, LCD | Keyboard, Save | Restore, Backup | Load, Firmware, Device). The main content area is titled 'DEVICE INFORMATION' and contains 'System information' (Software Version: 3.00 Build 100.00 Apr 16 2015, Hardware Version: 2.2D, Web Version: 1.00, Product ID: 00355800-01010004-00000000-00000000, Uptime: 0 Day(s)-00:04:31), 'Inputs' (Interface: HDMI, TS Lock: red indicator, Bitrate: 0.000 Mbps), and 'Outputs' (Modulator: DVBT, Bitrate(Act/Max): 0.070/31.668 Mbps, TS Overflow: green indicator). A 'Current Modulation Mode' label points to the DVBT output. A 'TS indicator' label points to the green indicator in the TS Overflow section.

Annotations on the screenshot:

- Red dashed box around the sidebar menu: User can click any item here to enter the corresponding interface to check information or set the parameters.
- Red dashed box around the System information section: System information
- Red dashed box around the Inputs section: Input information and encoding working status.
- Red dashed box around the Outputs section: TS indicator-Green light indicates the TS is normal, which otherwise turns to red.

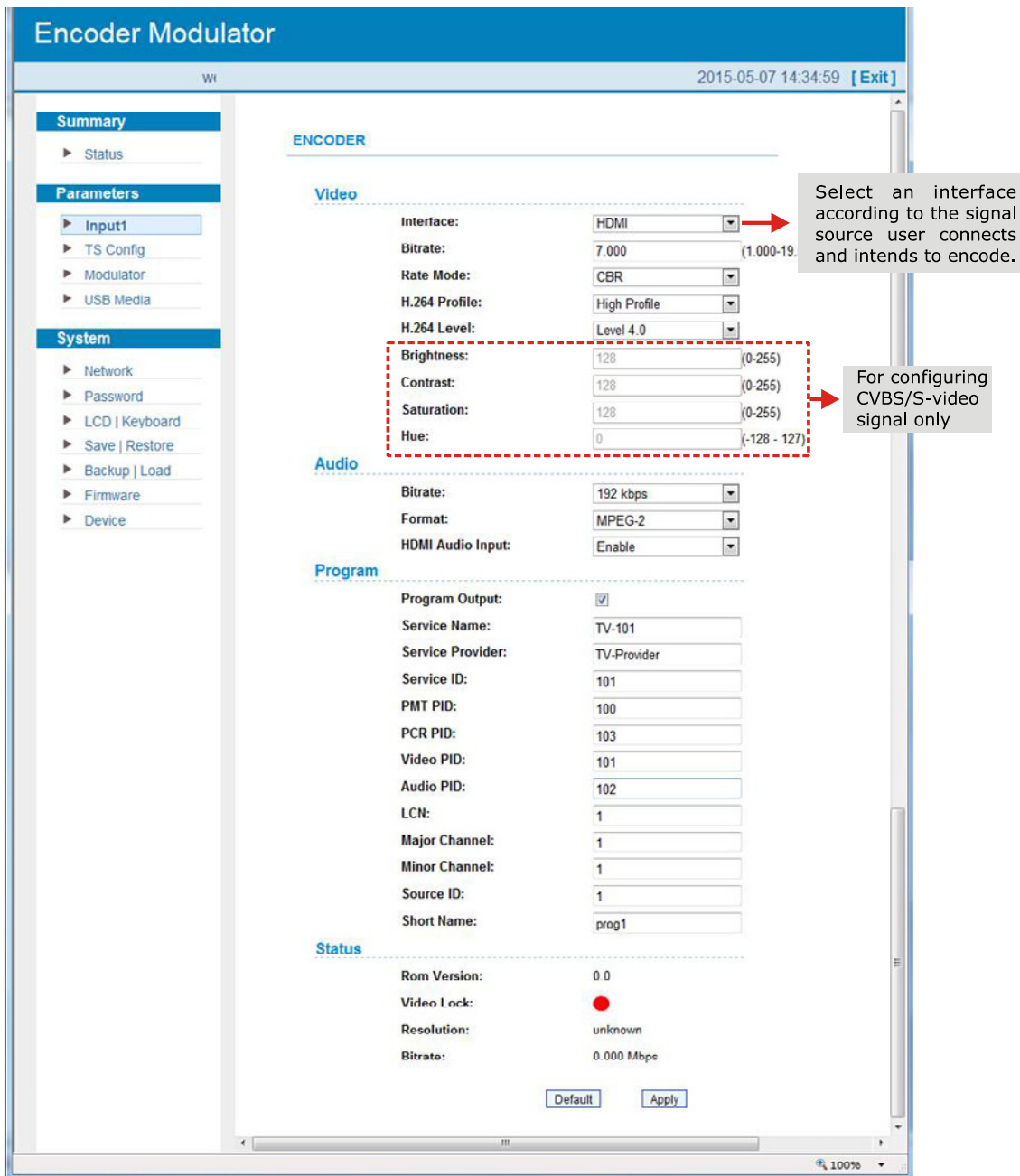
Figure 25.



■ Parameters – Input

From the menu on left side of the webpage, clicking “Input”, it displays the interface where users can configure the encoding parameters for the input video/audio (see figure).

NOTE: Items in this interface varies when different modulation mode is chosen as the current mode. This user manual here takes **DVB-T modulation mode** as example to display.



Encoder Modulator

Wi 2015-05-07 14:34:59 [Exit]

Summary

- ▶ Status

Parameters

- ▶ **Input1**
- ▶ TS Config
- ▶ Modulator
- ▶ USB Media

System

- ▶ Network
- ▶ Password
- ▶ LCD | Keyboard
- ▶ Save | Restore
- ▶ Backup | Load
- ▶ Firmware
- ▶ Device

ENCODER

Video

Interface: HDMI (Select an interface according to the signal source user connects and intends to encode.)

Bitrate: 7.000 (1.000-19.000)

Rate Mode: CBR

H.264 Profile: High Profile

H.264 Level: Level 4.0

Brightness: 128 (0-255)

Contrast: 128 (0-255)

Saturation: 128 (0-255)

Hue: 0 (-128 - 127) (For configuring CVBS/S-video signal only)

Audio

Bitrate: 192 kbps

Format: MPEG-2

HDMI Audio Input: Enable

Program

Program Output: ☒

Service Name: TV-101

Service Provider: TV-Provider

Service ID: 101

PMT PID: 100

PCR PID: 103

Video PID: 101

Audio PID: 102

LCN: 1

Major Channel: 1

Minor Channel: 1

Source ID: 1

Short Name: prog1

Status

Rom Version: 0.0

Video Lock: ●

Resolution: unknown

Bitrate: 0.000 Mbps

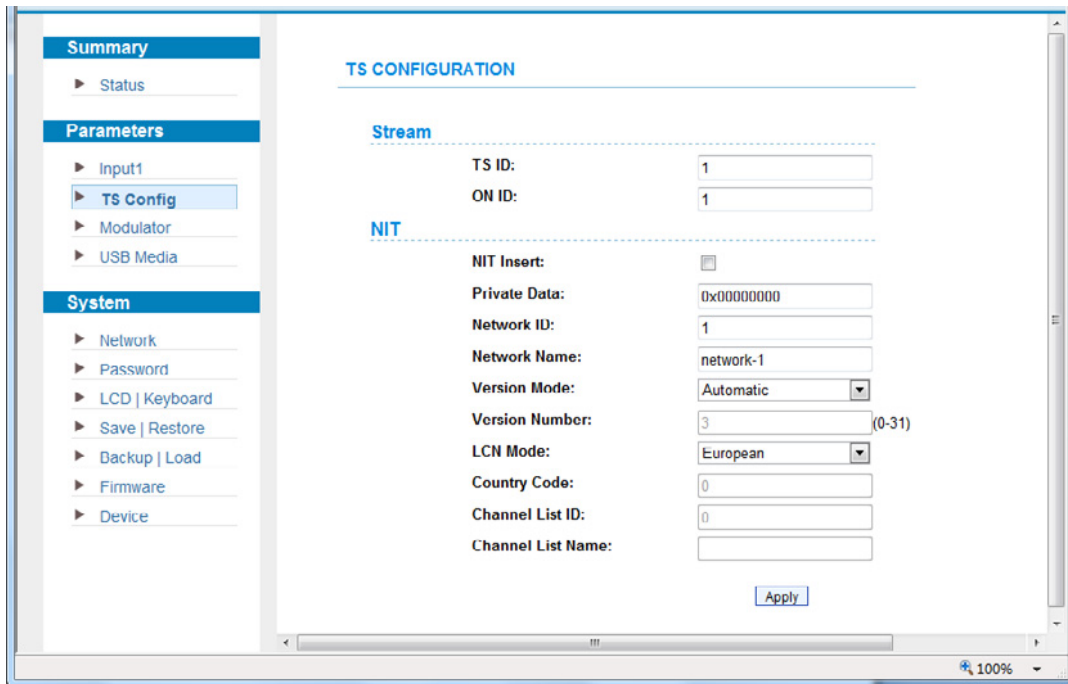
Default Apply

Figure 26.



■ Parameters – TS Config

From the menu on left side of the webpage, clicking “TS Config”, it displays the interface where users can configure the parameters for the transport stream as prompt (see figure).



TS CONFIGURATION	
Stream	
TS ID:	1
ON ID:	1
NIT	
NIT Insert:	☐
Private Data:	0x00000000
Network ID:	1
Network Name:	network-1
Version Mode:	Automatic
Version Number:	3 (0-31)
LCN Mode:	European
Country Code:	0
Channel List ID:	0
Channel List Name:	
Apply	

Figure 27.



■ Parameters – Modulator

From the menu on left side of the webpage, clicking “Modulator”, it displays the interface where users can configure the modulating parameters for the RF output (see figure). User can select a different modulation standard at “System → Device” interface.

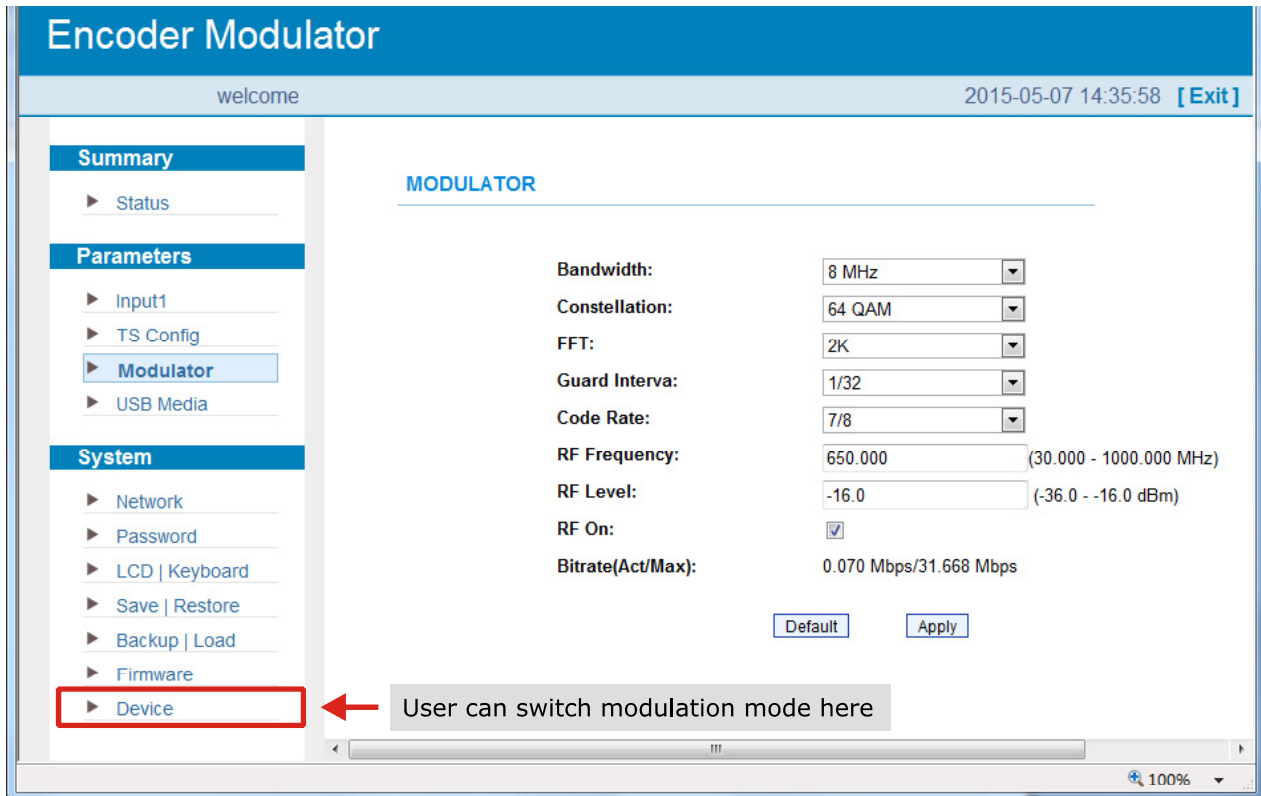


Figure 28.



■ Parameters – USB Media

From the menu on left side of the webpage, clicking “USB Media”, it displays the interface where users can operate USB device (see figure).

NOTE: It is necessary to connect USB device and signal source and activate encoding to operate TS recording.

NOTE: It is necessary to connect USB device when operate TS playing.

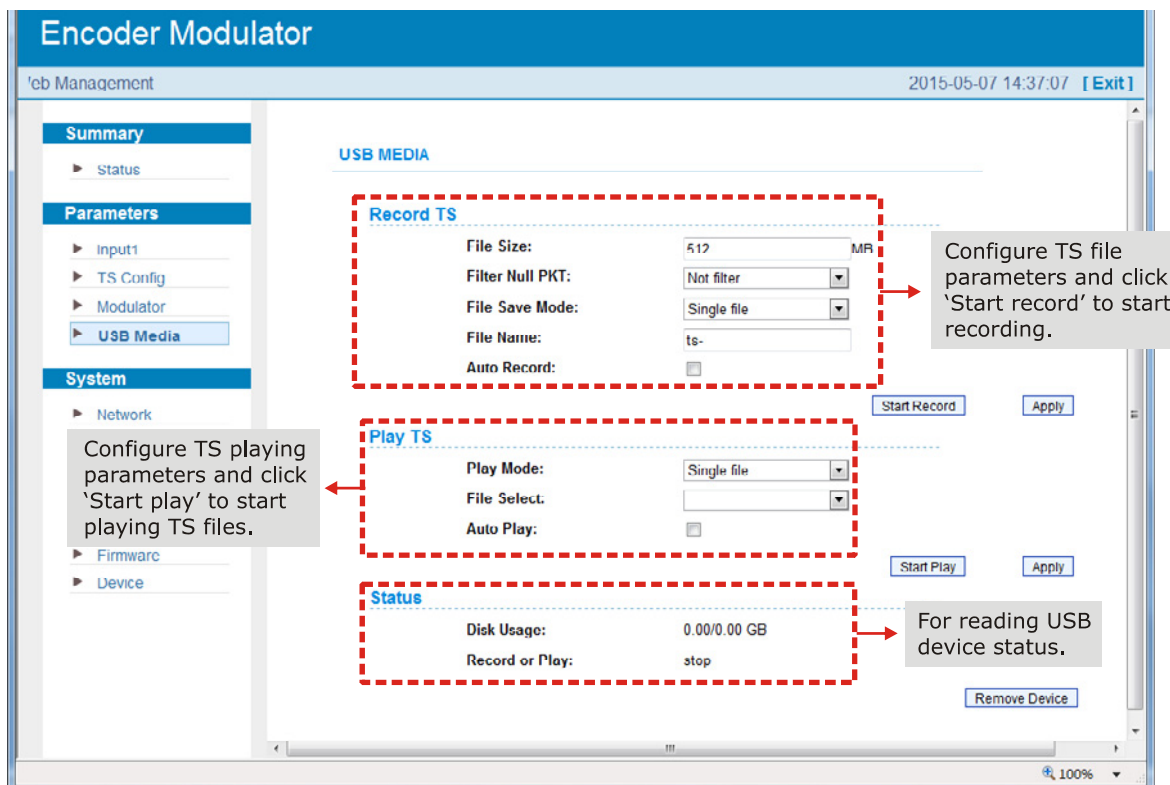


Figura 29.

► Record TS

■ File Save Mode

“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.

“Segment 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 file.



- **File name:** Users can enter this menu to edit 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".
- **File size:** users can set the file size for the *.ts to be recorded. A single file can be maximum 2047M in size.

► **Play TS**

■ **Play mode**

Mode 1: The ts files will be saved in 188-byte packages with null packet embedded.

Mode 2: The ts files will be saved in 188-byte packages with null packet filtered. However, such ts files cannot be normally played with NDS3558, but can be played on PC with some media player such as VLC.);

Mode 3: The ts files will be saved in 204-byte packages with null packet filtered.

► **File Select**

To browse TS files in the USB device.

► **Auto Record / Play:**

When the auto mode is enabled, the device will automatically record/play after USB connected. Otherwise user needs to click "Start record/Play" button to start.



■ System – Network

From the menu on left side of the webpage, clicking “Network”, it displays the interface where users set the network configuration for the device (see figure).

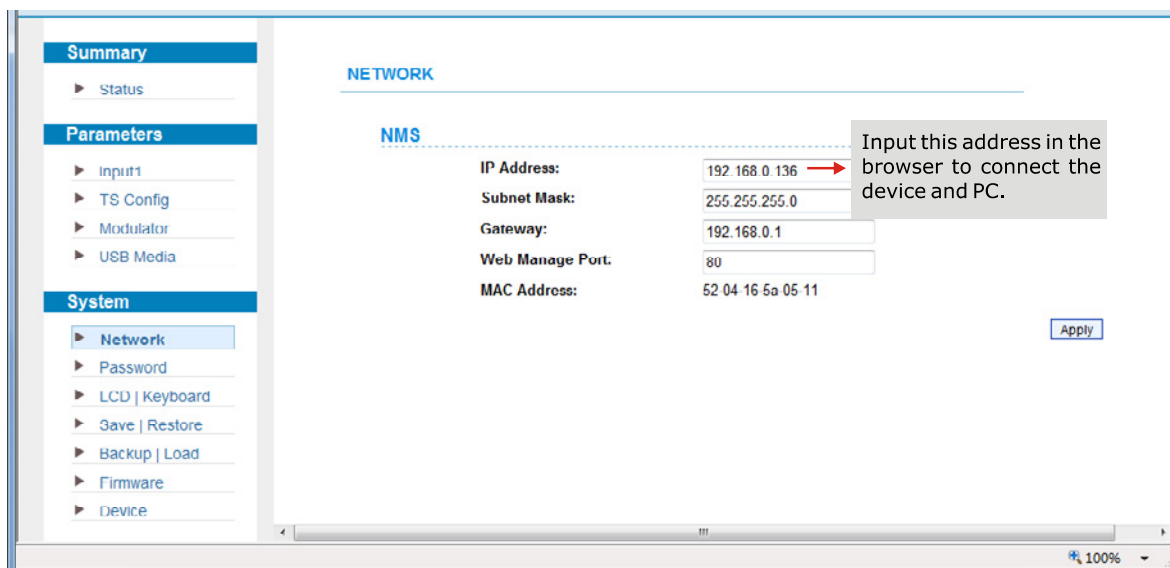


Figure 30.

■ Parameters – LCD /Keyboard

From the menu on left side of the webpage, clicking “LCD/Keyboard”, it displays the interface where users can set the time out for the LCD (see figure).

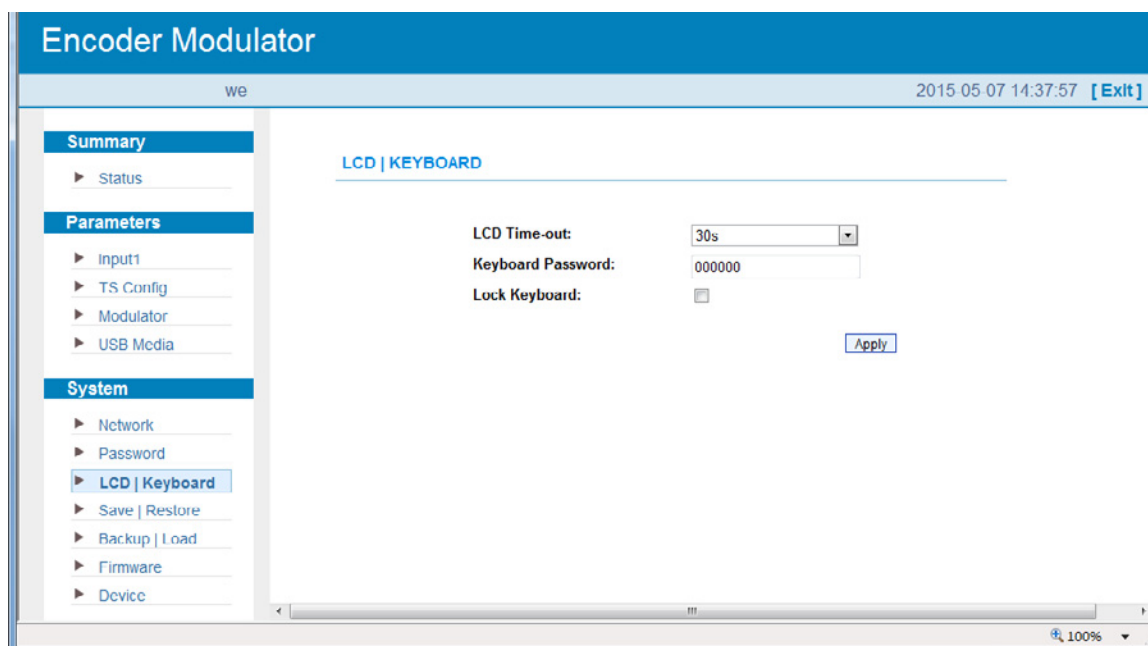


Figure 31.



■ System – Password

From the menu on left side of the webpage, clicking “Password”, it will display the screen as Figure-9 where to set the login account and password for the web NMS (see figure).

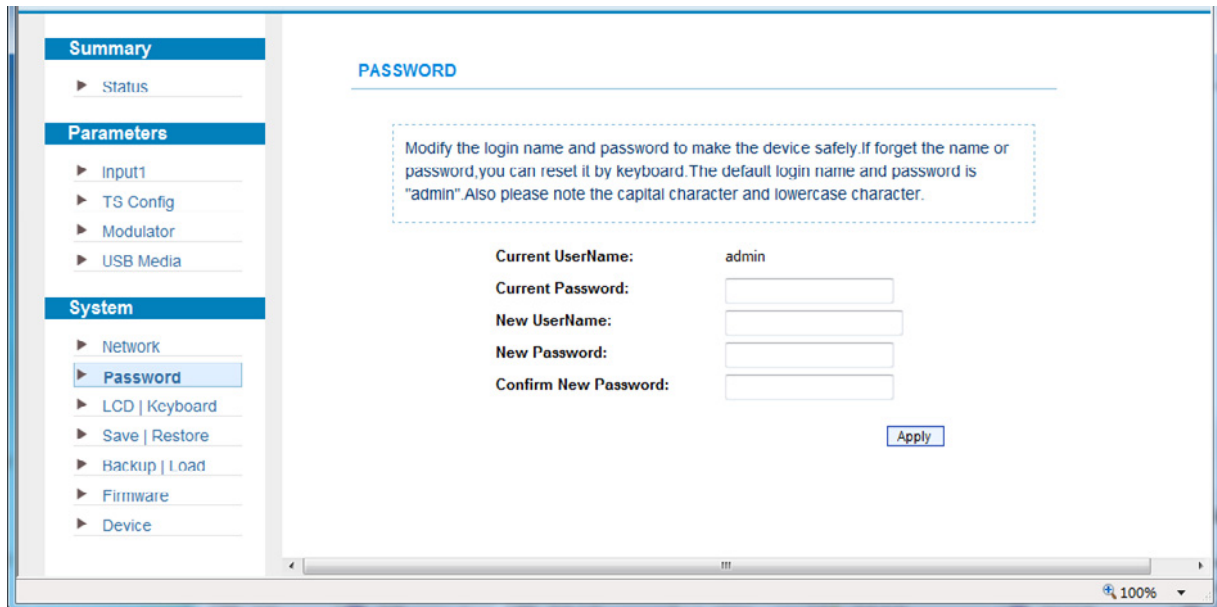


Figure 32.

■ System – Save / Restore

From the menu on left side of the webpage, clicking “Save/Restore”, it will display the screen as figure below where to save or restore your configurations.

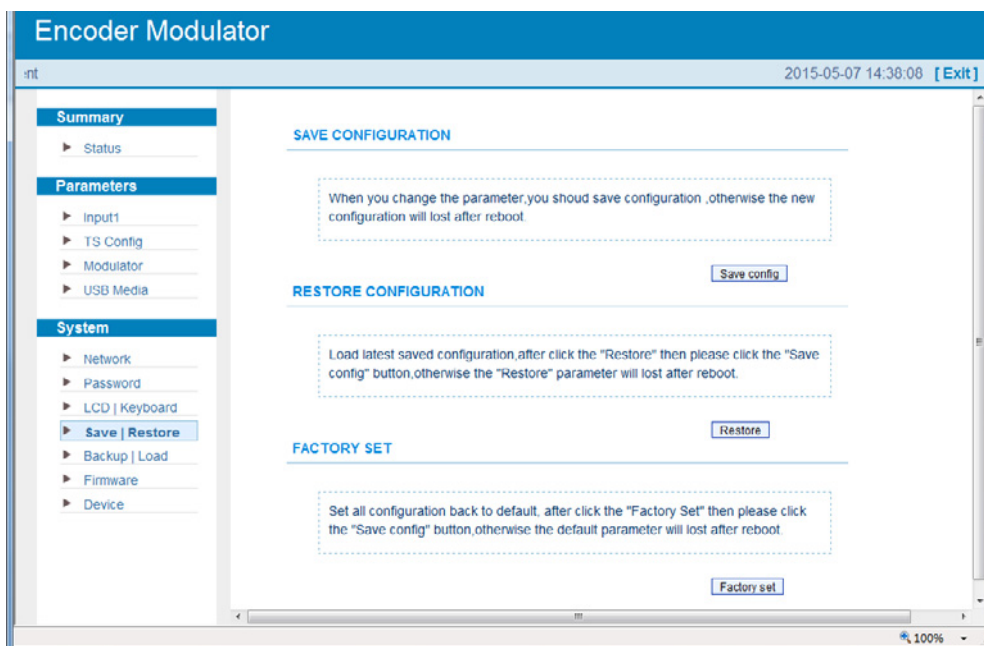


Figure 33.



■ System – Backup /Load

From the menu on left side of the webpage, clicking “Backup/Load”, it will display the screen as figure below where to backup or load your configurations.

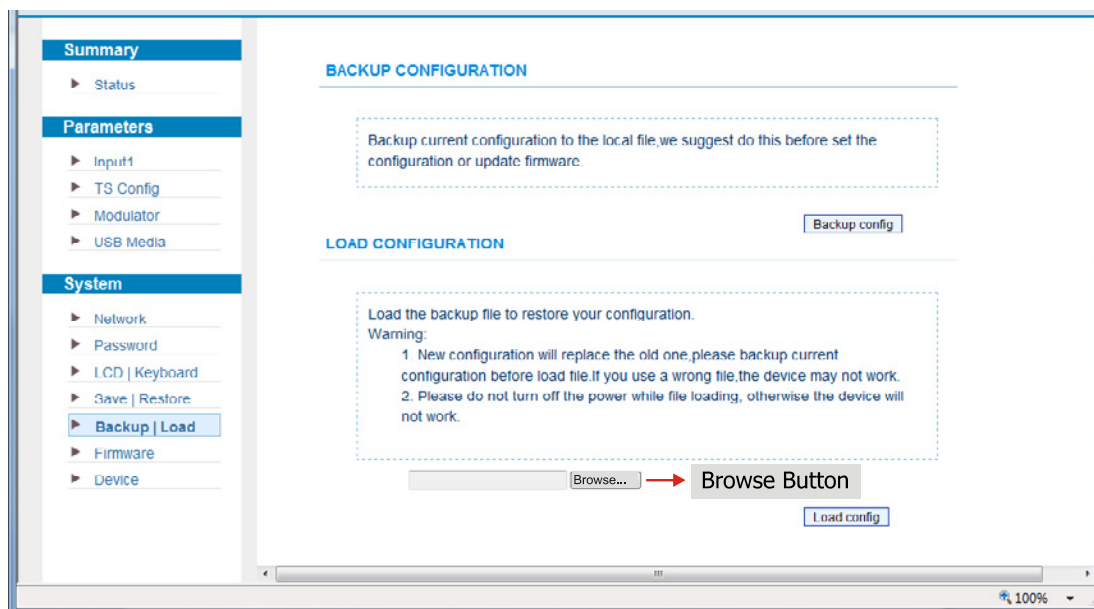


Figure 34.

■ System – Firmware:

Click “**Firmware**” from the menu it will display the screen as the figure. Here user can update the device by using the update file.

Click “**Browse**” to find the path of the device update file for this device then click “**Update**” to update the device.

After updating the device, user needs to restart the device.

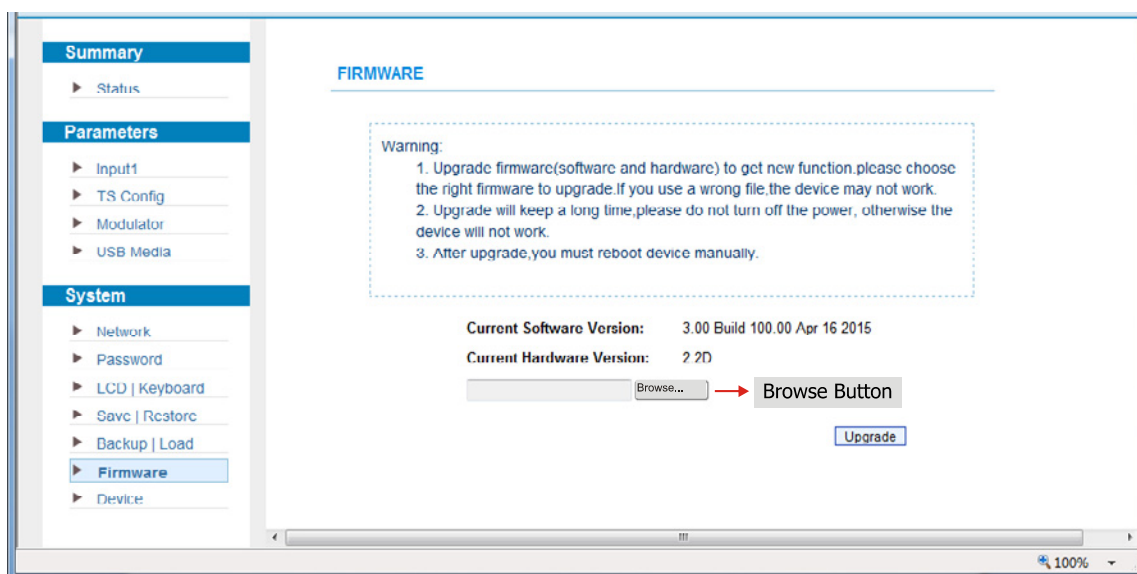


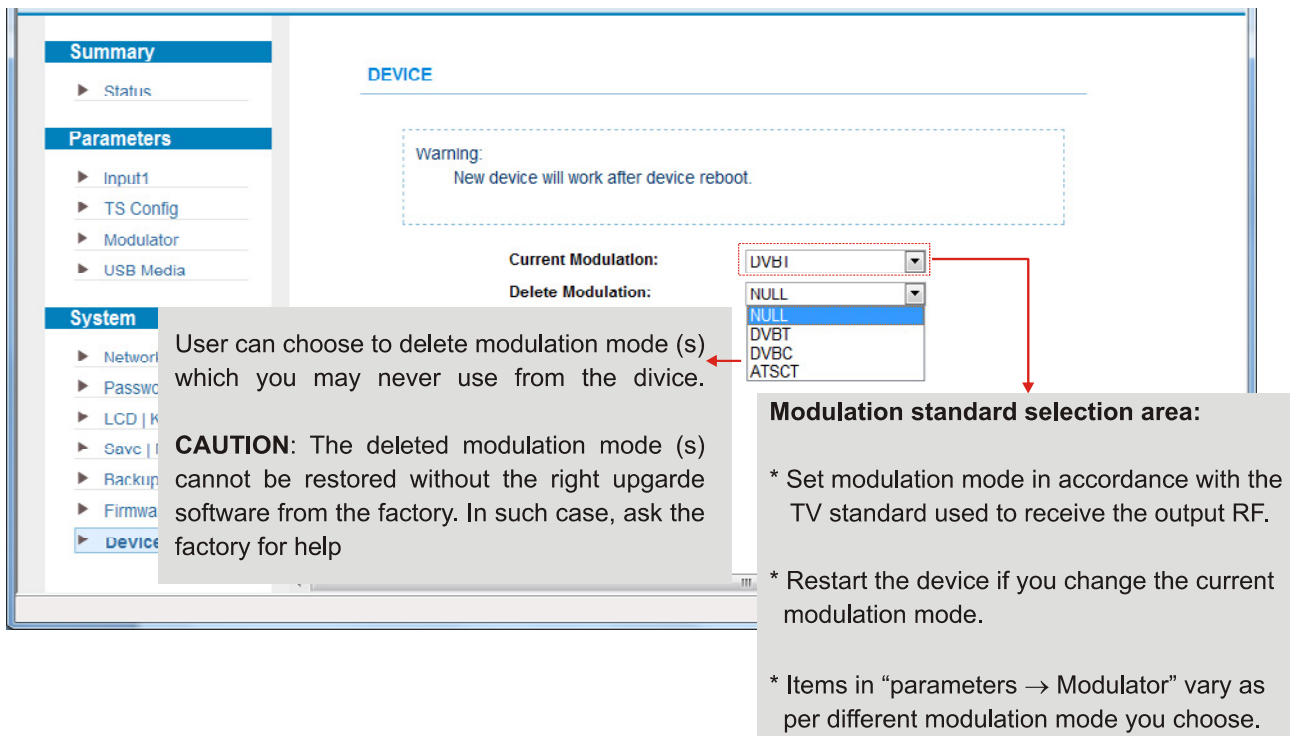
Figure 35.



■ System – Device

From the menu on left side of the webpage, clicking “Device”, it will display the screen as the figure. The encoder modulator supports Modulation dynamic switching, which means several modulation standard can be in one device, but no more than three modulation standards is suggested. User can select modulation standard at this interface.

After selecting the Modulation standard, user needs to restart the device.



Warning:
New device will work after device reboot.

Current Modulation: DVB-T

Delete Modulation: NULL, DVB-T, DVB-C, ATSC

User can choose to delete modulation mode (s) which you may never use from the device.

CAUTION: The deleted modulation mode (s) cannot be restored without the right upgrade software from the factory. In such case, ask the factory for help

Modulation standard selection area:

- * Set modulation mode in accordance with the TV standard used to receive the output RF.
- * Restart the device if you change the current modulation mode.
- * Items in “parameters → Modulator” vary as per different modulation mode you choose.

Figure 36.



7 SPECIFICATIONS

**HDMI****VIDEO**

Encoding	MPEG-4 AVC/H.264
H.264 Profile	High profile, main profile
H.264 Level	Level 3.0/3.1/ 3.2/ 4.0/4.1/4.2
Interface	HDMI
Resolution	1920 x 1080_60 p, 1920 x 1080_50 p; 1920 x 1080_60 i, 1920 x 1080_50 i; 1280 x 720_60 p, 1280 x 720_50 p
Bit rate	1000 ~ 19,500 Mbps

AUDIO

Encoding	MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC
Sample rate	48 KHz
Bit rate	MPEG1 Layer II: 64, 96, 128, 192, 256, 320, 384 kbps MPEG2-AAC: 128, 192, 256, 320, 384 kbps MPEG4-AAC: 64, 96, 128, 192, 256 kbps

YPbPr / CVBS / S-Video (with an adapter to VGA)**VIDEO**

Encoding	MPEG-4 AVC/H.264
Interface	CVBS x 1, YPbPr x 1, S-Video x 1
Resolution	
CVBS & S-Video	720 x 576_50i (PAL); 720 x 480_60i (NTSC)
YPbPr	1920 x 1080_60i, 1920 x 1080_50i; 1280 x 720_60 p, 1280 x 720_50 p
Bit rate	1000 ~ 19,500 Mbps

AUDIO

Encoding	MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC
Interface	1 x Stereo/2 x mono
Sample rate	48 kHz
Bit rate	MPEG1 Layer II: 64, 96, 128, 192, 256, 320, 384 kbps MPEG2-AAC: 128, 192, 256, 320, 384 kbps MPEG4-AAC: 64, 96, 128, 192, 256 kbps



DVB-T Modulation

Standard	DVB-T COFDM
Bandwidth	6 MHz, 7 MHz, 8 MHz
Constellation	QPSK, 16 QAM, 64 QAM
Code rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/32, 1/16, 1/8, 1/4
Transmisión Mode	2 K, 8 K
RF frequency	30~1000 MHz, 1 kHz step
RF output level	-16 ~ -36 dBm (71~91 dbμV), 0.1 dB step

DVB-C Modulation

Standard	J.83A (DVB-C), J.83B, J.83C
MER	≥40 dB
RF frequency	30~960 MHz. 1 KHz step
RF output level	-16 ~ -36 dBm (71~91 dbμV), 0.1 dB step
Symbol rate	5000-9000 KHz
J.83A	
Constellation	16 / 32 / 64
Bandwidth	8M
J.83B	
Constellation	64 / 256 QAM
Bandwidth	6M
J.83C	
Constellation	64 / 256 QAM
Bandwidth	6M

ATSC Modulation

Standard	ATSC A/53
MER	≥40 dB
RF frequency	30~960 MHz. 1 KHz step
RF output level	-16 ~ -36 dBm (71~91 dbμV), 0.1 dB step
Constellation	8VSB



System

Management

Local control	LCD + control buttons
Remote control	web NMS
Language	English
LCN Insertion	Support
RF Combine in ATT	10 dB
Upgrade	USB/Web-server

General

Power supply	DC 12V
Dimensions	183 x 110 x 45 mm
Weight	< 1 kg
Operation temperature	0~45°

NOTE: Equipment specifications are set in these environmental operating conditions. Operation outside these specifications are also possible. Please check with us if you have specific requirements.

INCLUDED ACCESSORIES

External DC power supply
Quick Reference Guide

RECOMMENDATIONS ABOUT THE PACKING

It is recommended to keep all the packing material in order to return the equipment, if necessary, to the Technical Service.



8 MAINTENANCE

8.1 | | |--------------------------| | Cleaning Recommendations | |--------------------------|

CAUTION

To clean the cover, make sure the instrument is disconnected.

CAUTION

Do not use scented hydrocarbons or chlorized solvents. Such products June damage the plastics used in the construction of the cover.

The cover should be cleaned by means of a light solution of detergent and water applied with a soft cloth.

Dry thoroughly before using the system again.

CAUTION

Do not use alcohol or its derivatives for the cleaning of the front panel and particularly the viewfinders. These products can damage the mechanical properties of the materials and reduce their useful lifetime.



9 APPENDIX

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
16QAM	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
	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
64QAM	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
	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

TABLE 1. Recommended MPEG-2 Code Rate.



PROMAX ELECTRONICA, S. L.

Francesc Moragas, 71-75
08907 L'HOSPITALET DE LLOBREGAT (Barcelona)
SPAIN
Tel. : 93 184 77 00 * Tel. Intl. : (+34) 93 184 77 02
Fax : 93 338 11 26 * Fax Intl. : (+34) 93 338 11 26
<http://www.promaxelectronics.com>
e-mail: promax@promaxelectronics.com