# THOR BROADCAST

H-8HD-EMS  HD-SDI Program Encoder
H-8HD-EMH  HDMI  Program Encoder

User's Manual

*2016*

*Version: 2.1*

# A Note from Thor Broadcast about this Manual

## Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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# DIRECTORY

# Chapter 1 Product Introduction

## 1.1 Outline

The Thor Broadcast 8 HDMI H.264 Encoder is our 1RU solution for the best HD audio & video encoding/multiplexing up to 8 individual HDMI sources. This high density HDMI encoder outputs 8 channels MPEG-4 AVC/H.264 in perfect clarity and format. It allows for a single ASI input and an ASI output that lets you output MPTS and SPTS. It can multiplex the ASI input TS's and the 8 encoded SPTS to generate an MPTS output with the inserted PSI/SI information. This advanced encoder helps encapsulate everything you need to launch a high density output for IPTV headends, multiplexing, and ASI contribution feeds.

## 1.2 Main Features

- 8 HDMI or 8  sDi channels input &☐1 ASI Input
- H.264/AVC high profile level 4.0 video encoding
- MPEG1 Layer 2 (HE-AAC (V2) or LC-AAC optional) audio encoding
- PSI/SI editing and inserting
- VBR or CBR video bitrate mode
- 720P, 1080I, 1080P HD video format
- ASI output MPTS or 8 SPTS
- IP Output MPTS and 8 SPTS
- IP null packet filter
- PID filter and transparent transport
- Real-time output bit-rate monitoring
- Update device through NMS port
- LCD / keyboard, and network management (NMS)

## 1.3 Specifications

| Input | 8 HDMI or 8 SDI inputs | | |
|---|---|---|---|
| | 1 ASI input, BNC interface | | |
| **Video** | Resolution | 1920×1080_60P, 1920×1080_50P | |
| | | 1920×1080_60i, 1920×1080_50i | |
| | | 1280×720_60P, 1280×720 _50P | |
| | | 720x576_50i, 720x480_59.95i | |
| | Encoding | MPEG-4 AVC/H.264 high profile level 4.0 | |
| | Bit-rate | 0.8Mbps~19Mbps (each channel) | |
| | Rate Control | CBR/VBR | |
| | GOP Structure | IBBP | |
| | Advanced Pretreatment | De-interlacing, Noise Reduction, Sharpening | |
| **Audio** | Encoding | MPEG-1 Layer II, HE-AAC (V2), LC-AAC | |
| | Sampling rate | 48KHz | |
| | Resolution | 24 bit | |
| | Bit-rate | 64Kbps~384Kbps each channel | |
| **Multiplexing** | 1 ASI input multiplexed with local 8 channels of TS | | |
| **Stream output** | 2*ASI output, BNC interface | | |
| | MPTS and 8 SPTS over UDP, 1000 Base-T Ethernet interface (UDP unicast / multicast) | | |
| **System function** | LCD/keyboard operating, NMS supporting | | |
| | Chinese-English control interface | | |
| | Ethernet software & hardware upgrade | | |
| **Miscellaneous** | Dimension (W× L× H) | 440mm×410mm×44.5mm | |
| | Approx weight | 4kg | |
| | Temperature | 0~45℃(work),　-20~80℃（Storage） | |
| | Power | AC 100V-220V±10%, 50/60Hz | |
| | Consumption | 25W | |

## 1.4 Principle Chart
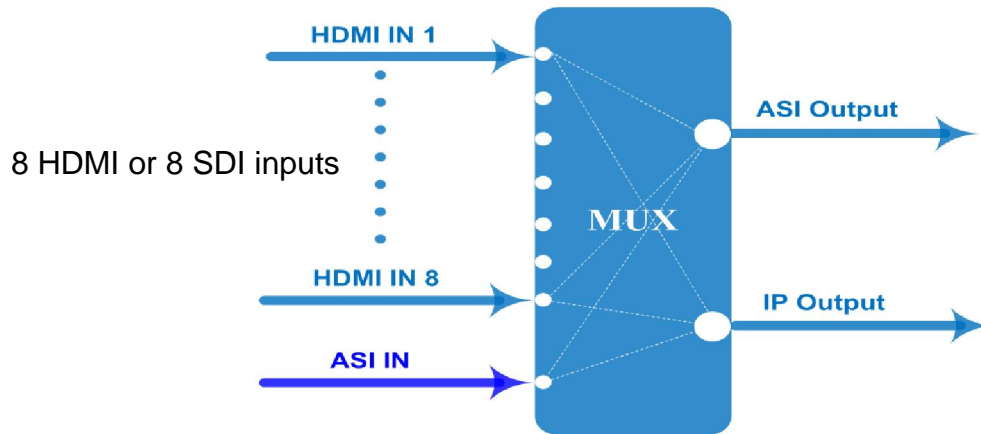


## 1.5 Appearance and Illustration

Front Panel Illustration:
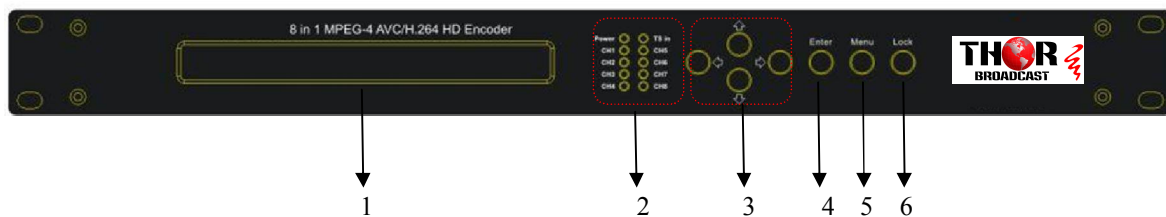


| 1 | LCD Screen | |
|---|---|---|
| 2 | Indicators | Power Indicator |
| | | TS In: Input Lock Indicator |
| | | CH1-CH8: When the program has been multiplexed, the indicator will be on. |
| 3 | UP/ DOWN, LEFT/RIGHT Keys | |
| 4 | Enter Key | |
| 5 | Menu Key | |
| 6 | Lock Key | |

Rear Panel Illustration:
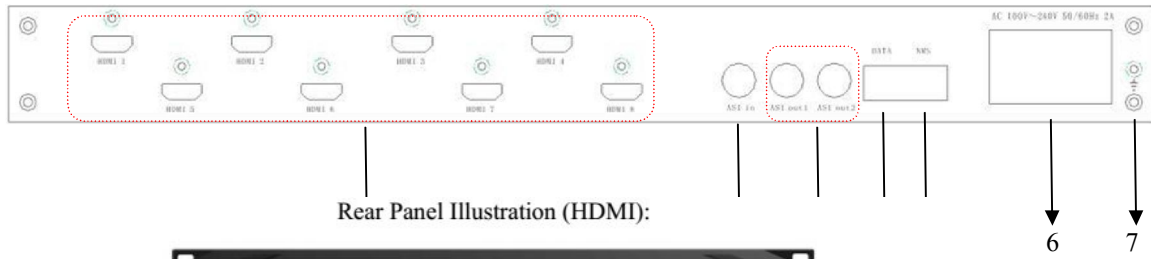


Rear Panel Illustration (HDMI):



Rear Panel Illustration (SDI):



| 1 | 8 * HDMI Input Ports |
| --- | --- |
| 2 | ASI Input Port |
| 3 | 2 * ASI Output Ports |
| 4 | Data Port (for IP Signal Output) |
| 5 | NMS (Network Management Port) |
| 6 | Power Switch and socket |
| 7 | Grounding Pole |

# Chapter 2 Installation Guide

## 2.1 Acquisition

When you first open the package of the encoder, please check items according to packing list. Normally it should include the following items:

- H-8HD-EMH MPEG-4 AVC/H.264 HD Encoder
- User's Manual
- HDMI Cable
- ASI Cable
- Power Cord

If any item is missing please contact Thor Broadcast 1-800-521-8467

## 2.2 Installation Preparation

When you install the device, please follow these steps. The details of installation will be described at the rest part of this chapter. You can also refer to the rear panel chart during the installation.

The main content of this chapter includes:

- Checking the possible device for missing or damage during transportation
- Preparing relevant environment for installation
- Installing Encoder
- Connecting signal cables
- Connecting communication port (if it is necessary)

### 2.2.1 Device's Installation Flow Chart is Illustrated as following：

Acquisition Check → Install Device → Connecting Grouding Wire and Power Cord → Connecting Signal Wire → Setting Parameter → Running Device
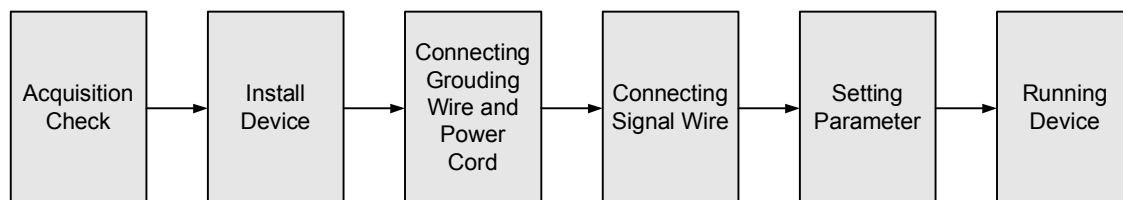
## 2.2.2 Environment Requirement

| Item | Requirement |
|---|---|
| Machine Hall Space | When user installs machine on rack, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m. |
| Machine Hall Floor | Electric Isolation, Dust Free, Rack Room with Ventilation |
| Environment Temperature | 5~40°C(sustainable )，0~45°C(short time)，installing air-conditioning is recommended |
| Relative Temperature | 20%~80% sustainable    10%~90% short time |
| Pressure | 86~105KPa |
| Power | Device power requires AC power 220V 50Hz. Please carefully check before running. |

## 2.2.3 Grounding Requirement

✓ It is important to keep this device grounded to ensure all of the modules function correctly. Correctly grounding the device will also help prevent any electrical interference, lightening. Etc. Also it helps reject minor interference that may disrupt the devices ability to function smoothly. General rule of them, make sure the device is grounded when installing anywhere.

✓ Always use copper wire. When applied correctly the ground must be wrapped well to ensure maximum conduction so it can reduce any high frequencies. The copper ground wire should also be as short and thick as possible

✓ Installer must make sure that the two ends of the ground are well conducted and have appropriate anti-rust properties.

✓ It is prohibited to use any other device as part of the grounding electric circuit.

✓ The area of the conduction between the ground wire and device's frame should be no less than 25 ㎡.

## 2.2.4 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than $25mm^2$.

## 2.2.5 Device Grounding

Connect the device's grounding rod to frame's grounding pole with copper wire.

# 2.3 Wire's Connection

The grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just beside ,whose order goes like this, power switch is on the left, power supply socket is on the right and the fuse is just between them.

● Connecting Power Cord

Insert one end into power supply socket, while insert the other end to AC power.

● Connect the ground wire carefully

☞Caution:

**Before connecting power cord to Encoder, set the power switch to "OFF".**

# 2.4 Signal Cable Connection

## 2.4.1 HDMI input cable illustration:

### 2.4.2 ASI output cable illustration:



### 2.4.3 Network Cable illustration (CAT5):



### 2.4.4 HDMI input interface connection

Find the HDMI interface on the device according to the connector mark described on the rear panel illustration, and then connect the HDMI cable (in the accessories). One end is connected to the head-end equipment while the other end to the encoder's HDMI input port. The encoder's HDMI input port (HDMI1…HDMI8) and its connection are illustrated as follows:



### 2.4.5 ASI output interface connection

Find the ASI output interface on the device according to the connector mark described on the rear panel illustration, and then connect the ASI cable (in the accessories). One end is connected to the encoder's ASI out connector (ASI1, ASI2) while the other end to the TS stream multiplexer or modulator's ASI input port. The encoder's ASI output interface and its connection are illustrated as follow:

Thor Broadcast 2016      Tel: (800) 521-8467      Email: sales@thorfiber.com      http://www.thorbroadcast.com

## 2.4.6 IP Output Interface connection

Find the DATA interface on the device according to the connector mark described on the rear panel illustration, and then connect the network (CAT5). One end of the network cable is connected to the encoder's DATA output connector, while the other end to the TS stream multiplexer IP input port or other device which can input IP signal. The encoder's DATA connection is illustrated as follows:



## 2.4.7 NMS Connection

Find the NMS interface on the device according to the connector mark described on the rear panel illustration, and then connect the network (CAT5). One end of the network cable is connected to the encoder's NMS connecter, while the other end to the computer or the PC. The encoder's NMS connection is illustrated as follows:

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# Chapter 3 Operation

The H-8HD-EMH front panel is the user operating interface. Before operating, you can decide whether to use the default settings or customize the input and output parameters.

**Keyboard Function Description:**

**MENU:** Cancel current entered value, resume previous setting; Return to previous menu.

**ENTER:** Activate the parameters which need modifications, or confirm the change after modification.

**LEFT/RIGHT:**    Choose and set the parameters.

**UP/DOWN:** Modify activated parameter or paging up/down when parameter is inactivated.

**LOCK:** Lock the screen/cancel the lock state. After pressing the lock key, the LCD will display the current configuring state.

At the "Factory Configuration" page, press "**ENTER**" key to restore the factory default configuration.

## 3.1 Initializing

After powering on the device it will take a few seconds to initialize the system, and then the LCD will show the device name and output real-time bit-rate in the first row, while the 8 channels' respective input video resolution, frame rate and real-time encoding bit-rate in the second row in turn.

```
    8 in 1 Encoder                          65.958 Mbps
1 480I 60        08.235M                2 480I 60  08.241M
```

## 3.2 General Settings

By pressing LOCK key, enter in the main menu and set the input and output parameters in the following editing interfaces, the LCD will display the following pages:

```
    ►1  Input Setting            2 ASI Setting
     3  Output Setting           4 Network Setting
```

```
►5 Saving Config          6 Loading Config
 7 Version （SNMP）        8 Language
```

The option with "►" is the current selection, press the ENTER key to enter the specified submenu to modify the device parameter.

## 3.2.1 Input Setting

Under this menu, enter the corresponding encoding channel to set the relevant audio and video input parameters, and select programs to multiplex. The LCD will display 8 submenus which range from Encoding Channel 1 to Encoding Channel 8. The settings are the same for Encoding Channels 1-8, so we will show you one channel as an example to further explain. After pressing the enter key, the LCD will display the following pages:

```
►1.1 Encoder 1            1.2 Encoder 2
 1.3 Encoder 3            1.4 Encoder 4
```

```
►1.5 Encoder 5            1.6 Encoder 6
 1.7 Encoder 7            1.8 Encoder 8
```

Enter the submenu, the interface will turn into the following pages, and then you can enter the corresponding interface to modify the parameters.

```
►1.1.1 Video              1.1.2 Audio
 1.1.3 System             1.1.4 PG Muxer
```

## 3.2.1.1 Video Setting

```
►1.1.1.1 Bitrate          1.1.1.2 BitrateMod
 1.1.1.3 Profile          1.1.1.4 Level
```

➢ **Bitrate**

Press "Enter" key, modify relevant parameters of encoding rate (adjustable range: 0.8M~19M), the specific steps are displayed as follows:

```
┌────────────────────────────────────────┐
│  1.1.1.1  Bitrate                        │
│            8.000Mbps                     │
│                                          │
└────────────────────────────────────────┘
```

> **Bitrate Mode**

Choose CBR & VBR at this menu. CBR (Constant Bit-rate) means that the bit-rate will be a constant value. VBR (Variable Bit-rate) means that the bit-rate will always change along with the video scene changing.

```
┌────────────────────────────────────────┐
│  1.1.1.2 BitrateMod              01/01   │
│       [CBR]            VBR                │
│                                          │
└────────────────────────────────────────┘
```

> **Profile**

Select the configuration of H.264 profile at this menu. There are H.264 High Profile code format and main Profile code format.

```
┌────────────────────────────────────────┐
│  1.1.1.3 Profile                  01/01  │
│       [HIGH]            MAIN              │
│                                          │
└────────────────────────────────────────┘
```

> **Level**

Select the H.264 level at this menu. The option with bracket is the current choice.

```
┌────────────────────────────────────────┐
│  1.1.1.4 Level                    01/03  │
│     [1.2]     1.3     2.0     2.1        │
│                                          │
└────────────────────────────────────────┘
```

```
┌────────────────────────────────────────┐
│  1.1.1.4 Level                    02/03  │
│     [2.2]    3.0    3.1     3.2          │
│                                          │
└────────────────────────────────────────┘
```

```
┌────────────────────────────────────────┐
│  1.1.1.4 Level                    03/03  │
│     [4.0]    4.1    4.2                  │
│                                          │
└────────────────────────────────────────┘
```

## 3.2.1.2 Audio Setting

```
┌────────────────────────────────────────┐
│  1.1.2.1 Bit Rate        1.1.2.2 Format  │
│                                          │
│                                          │
└────────────────────────────────────────┘
```

➢ **Audio Bit Rate Setting**

Set the input audio bit-rate by pressing the enter key to enter the main editing interface. And there are: 64Kbps, 96Kbps, 112Kbps, 128Kbps, 160Kbps, 192Kbps, 224Kbps, 256 Kbps, 320Kbps, and 384Kbps. After the modification, press enter key again to take the modification into effect. The LCD will display the following pages:

```
1.1.2.1  Bit-rate                           01/03
  64 Kbps        96Kbps        112Kbps      [128Kbps]
```

```
1.1.2.1  Bit-rate                           02/03
  160 Kbps       192Kbps       224Kbps      [256Kbps]
```

```
1.1.2.1  Bit-rate                           03/03
  320 Kbps       384Kbps
```

➢ **Audio Format Setting**

**AAC: Advanced Audio Coding**

Set the input audio format in this interface, and the 3 options are MPEG1 Layer 2, LC-AAC, and HE-AAC. Enter the main editing menu, the LCD will display the following page:

```
1.1.2.2   Format                            01/02
  [MPEG1-Layer Ⅱ]              LC-AAC
```

```
1.1.2.2   Format                            02/02
  [HE-AAC]
```

## 3.2.1.3 System Settings

```
┌─────────────────────────────────────────────────────┐
│  ►1.1.3.1 Prog Number        1.1.3.2 Video PID        │
│   1.1.3.3 Audio PID          1.1.3.4 PMT PID          │
└─────────────────────────────────────────────────────┘

┌─────────────────────────────────────────────────────┐
│  ►1.1.3.5 PCR PID            1.1.3.6 IP Enable        │
│   1.1.3.7 Out Address        1.1.3.8 Out Port         │
└─────────────────────────────────────────────────────┘

┌─────────────────────────────────────────────────────┐
│  ►1.1.3.9 Null PKT                                    │
│                                                       │
└─────────────────────────────────────────────────────┘
```

Under this interface, set the corresponding system parameters, after the modification, press enter key to take the modification into effect.

➢ **Program Number Setting**

Set the program number by pressing ENTER to enter this submenu. The LCD will display as shown below:

```
┌─────────────────────────────────────────────────────┐
│   1.1.3.1 Program Number                              │
│              0x0101                                   │
│                                                       │
└─────────────────────────────────────────────────────┘
```

➢ **Video/Audio/PMT/PCR PID Settings**

Set these parameters by pressing ENTER to enter these submenus. The LCD will display the following pages, and the maximum PID number cannot exceed 0x1fff.

```
┌─────────────────────────────────────────────────────┐
│   1.1.3.2 Video  PID                                  │
│        0x0101                                         │
│                                                       │
└─────────────────────────────────────────────────────┘

┌─────────────────────────────────────────────────────┐
│   1.1.3.3  Audio  PID                                 │
│        0x0102                                         │
│                                                       │
└─────────────────────────────────────────────────────┘

┌─────────────────────────────────────────────────────┐
│   1.1.3.4  PMT  PID                                   │
│        0x0100                                         │
│                                                       │
└─────────────────────────────────────────────────────┘
```

```
1.1.3.5 PCR PID
       0x0101
```

➢ **IP Enable**

```
1.1.3.6 IP Enable                    01/01
       YES         [NO]
```

➢ **Out Address/Out Port Setting**

Modify the out address and out port in interfaces below.

```
1.1.3.7 Out Address
       224.002.002.002
```

```
1.1.3.8 Out Port
       1002
```

➢ **Null Packet**

```
1.1.3.9 Null Packet                    01/01
           YES         [NO]
```

Choose YES (filter the null packet) or NO (don't filter null packet) to decide whether to filter the null packet or not.

## 3.2.1.4 Program Mux Setting

Decide whether to open the multiplexing function of the device.

➢ **Channel Mux**

Under this interface, decide whether to multiplex the channel encoding stream. **YES** means that the device multiplexes the encoding stream into the MPTS, while **NO** means that the output program is SPTS. The LCD will display the following pages after pressing enter key.

```
1.1.4.1 Channel Mux                    01/01
           [ YES]                       NO
```

## 3.2.2 ASI Setting

Check the ASI input program amount in this interface, and the LCD will display the following page. Prog: 006 represents the input program is 6 and Out:003 represents 3 of the 6 programs have been multiplexed.

```
► 2.1  Parse  ASI  Prog
```

```
2.1 Parse ASI Prog              Prog: 006 Out: 003
► 001 HK1           √          002 HK2              X
```

## 3.2.3 Output Setting

Press the enter key in the main editing interface to set the device output parameters. The device will display the following page after pressing the enter key.

```
► 3.1 IP Out Enable              3.2 IP Out Address
  3.3 IP Out Port                3.4 Trans Stream ID
```

```
► 3.5 Output Stream              3.6 ASI Output
  3.7 UTC Time Config            3.8 Null PKT
```

```
► 3.9 TS Package Num
```

## 3.2.3.1 IP Out Enable

This is a new function of this encoder, decide whether to open the IP output function by pressing the ENTER key in this menu, and the operating interface will show the following page:

```
► 3.1 IP out Enable
     [ YES]                    NO
```

### 3.2.3.2 IP Out Address

Enabling the IP output function, you can set the device IP output address in this interface. After pressing the ENTER key, the operating interface will display the following page:

```
►  3.2  IP  Out  Address
     224.002.002.002
```

### 3.2.3.3 IP Out Port

In this menu, set the encoder IP output port number by pressing the ENTER key to enter the main editing interface.

```
►  3.3  IP  Out  Port
     01001
```

### 3.2.3.4 Trans Stream ID

Set the device TS ID in this interface after pressing the ENTER key to enter the main editing page.

```
►  3.4  Trans Stream ID
     00000
```

### 3.2.3.5 Output Stream

Modify the bit rate of output streams in this interface after pressing the ENTER key to enter the main editing page.

```
3.5 Output Stream
     040.000 Mbps
```

### 3.2.3.6 ASI Output

Set the ASI output in this interface under this menu, and there are 9 options: MPTS, and Channels 1-8.

```
3.6 ASI Output                          01/03
    [MPTS]      Channel 1      Channel 2      Channel 3
```

### 3.2.3.7 UTC Time

UTC refers to Universal Time Coordinated. Enter this menu to set the time as needed and it will then generate the TDT table and show in the user's STB.

```
3.7 UTC Time Configuration
     2012-01-29 15:45:03
```

### 3.2.3.8 Null Packet

```
3.8 Null Packet                            01/01
              YES           [NO]
```

### 3.2.3.9 TS Package Num

Set the amount of TS packages by entering into interface below.

```
3.9 TS Package Num                         01/02
     1          2          3         [4]
```

```
3.9 TS Package Num                         02/02
    [5]         6          7
```

## 3.2.4 Network Setting

Set the network parameters by pressing the enter key, and the LCD will display the following interfaces.

```
 4.1  IP  Address
      192.168.005.018
```

```
 4. 2  Subnet  Mask
      255.255.255.000
```

```
4.3  Gateway
     192.168.002.001
```

```
4.4  Console Address
     192.168.002.211
```

The MAC address is read-only in the keyboard operation interface, so users can just check the physical address under this interface, and the modification must be done in the network updating tools.

```
4.5 MAC Address
    201012345679
```

**NOTE: The MAC address is unique, and cannot be modified.**

## 3.2.5 Saving Configuration

Save the modification by pressing the enter key, and it will display the following interface when pressing the enter key.

```
5   Saving  Config                      01/01
 YES            [NO]
```

## 3.2.6 Loading Configuration

In this interface, select the modified configuration and the factory defaulted configuration. Enter the corresponding menu to select the configuration. The LCD will display the following interfaces:

```
►6.1  Load  Saved                6.2  Load  Default
```

## 3.2.7 Version

Check the device software version and hardware version, and the LCD will display the following interface when users press the ENTER key.

```
        8 in 1     Encoder
    SW 0.17F                    HW 08
```

## 3.2.8 Language

Select the language under this submenu:

```
    8 Language
                    [ENGLISH]
```

# Chapter 5 WEB NMS Operation

User not only can use front buttons to set configuration, but also can control and set the configuration in computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from the encoder's IP address; otherwise, it would cause IP conflict.

## 5.1 login

The default IP address of this device is 192.168.2.136. (We can modify the IP through the front panel.)

Connect the PC (Personal Computer) and the device with 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 Encoder & Modulator's IP address in the browser's address bar and press Enter.

It will display the Login interface as Figure-1. Input the Username and Password (Both the default Username and Password are "admin".) and then click "LOGIN" to start the device setting.
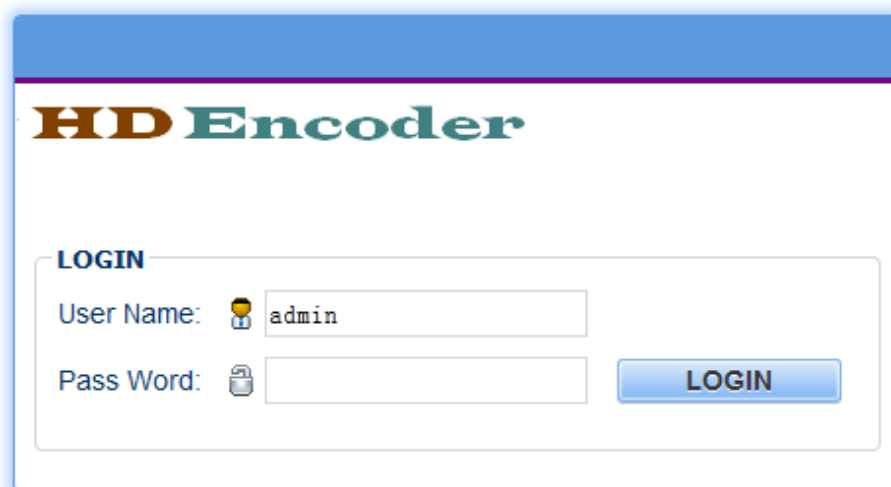


Figure-1

## 5.2 Operation

### Encode Setting

From the menu on top of the webpage, clicking "Encode Setting", it displays the information of the program from the 1<sup>st</sup> HDMI/SDI encoding channel as Figure-2.
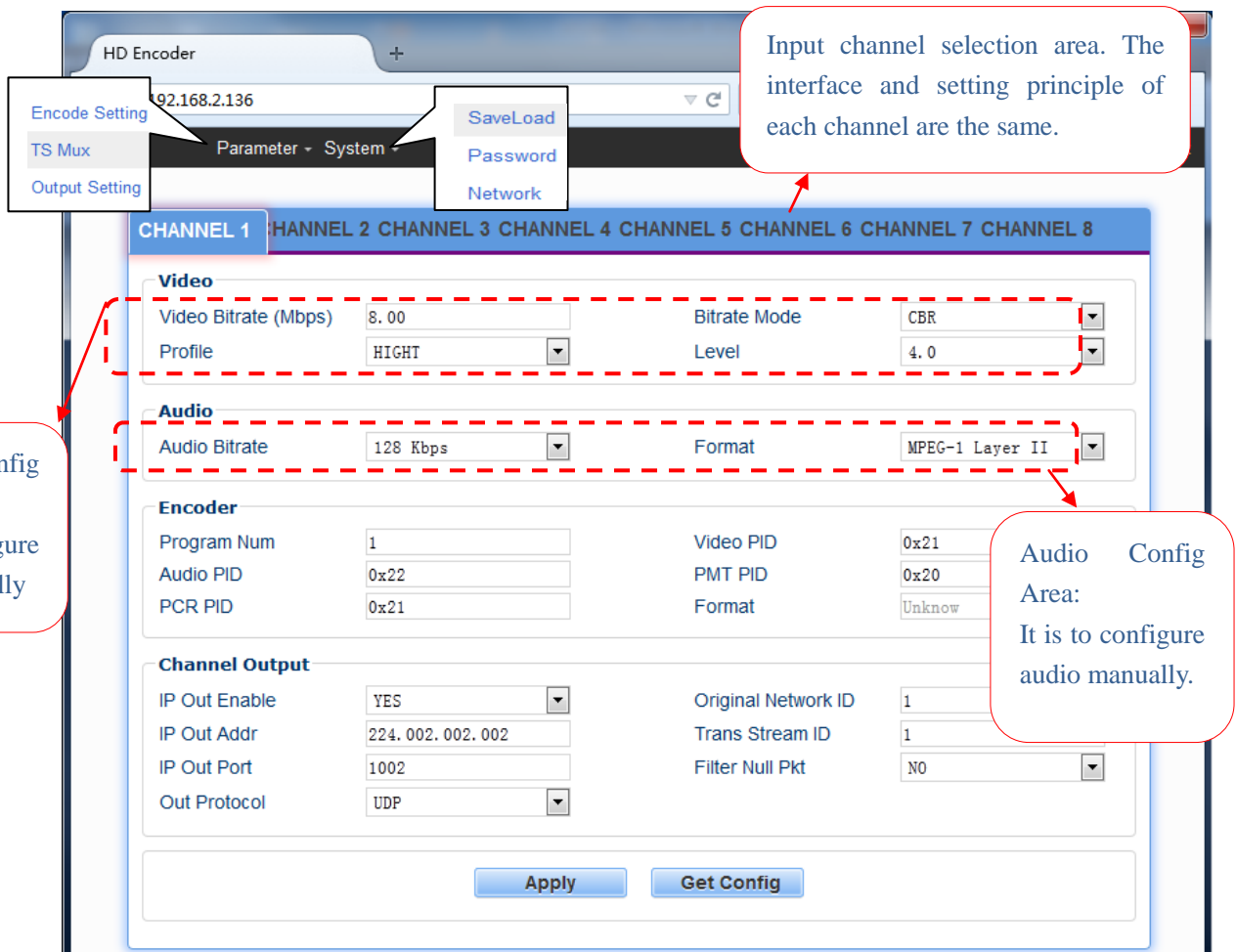


Figure-2

### TS Mux

From the menu on top of the webpage, clicking "TS MUX", it displays as Figure-2.
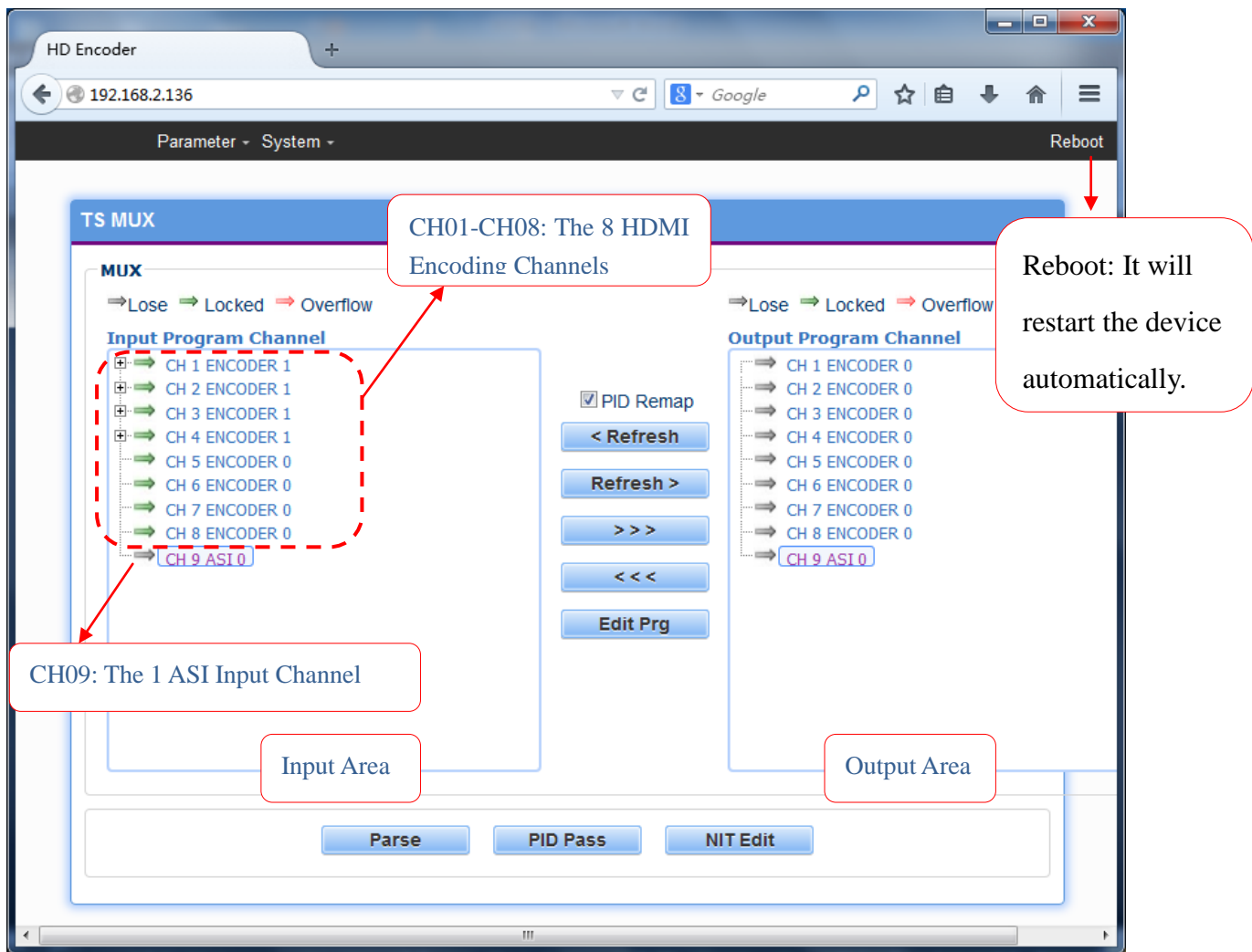
Figure-2

**PID Remap**: Check this box the set the PID Mapping

**< Refresh**: To refresh the inputting terminal and get the inputting information

**Refresh >**: To refresh the outputting terminal and get the outputting information

**> > >**: Multiplex the input programs to the output channels after selecting the target program. The system will automatically allot the program to the relevant output channel.

**< < <**: Cancel the multiplexed programs.

**Edit Prg**: To modify the output programs' Program Name, PMT, PCR, video, or audio PID as needed. To modify program information, user can select the target program in output part first and click this button to pop up a dialog box Figure-3 as below:

Figure-3

**PID Pass** : User can decide to bypass the inputting PID as needed.

In some occasions, there are some PIDs which won't belong to any program, such as EPG, NIT tables, and so on, but user just wants to pass them through the multiplexing module without changing anything. This is the main purpose of this function. Click this button to pop up a dialog box Figure-4:



Figure-4

**NIT Edit** NIT: Network Information Table.

NIT table is a very important table for describing the network and TS. Users can set the parameters of the output NIT table under below interface (Figure-5).

Figure-5

**Network ID**：The parameter describes the output TS's network ID

**Network Name**：The parameter describes the output TS's network name.

**Insertion private description**

**Insert Private**：This checkbox will allow user to insert the private descriptor into the output TS. The

private descriptor includes two parts. One is descriptor tag, and the other is descriptor information.

The Descriptor Tag is an 8-bit field which identifies each descriptor.

The Descriptor Data is the detailed information of the private description.

## Output Setting

Click "Output Setting", it will display the interface where to configure the output parameter. as

Figure-6.
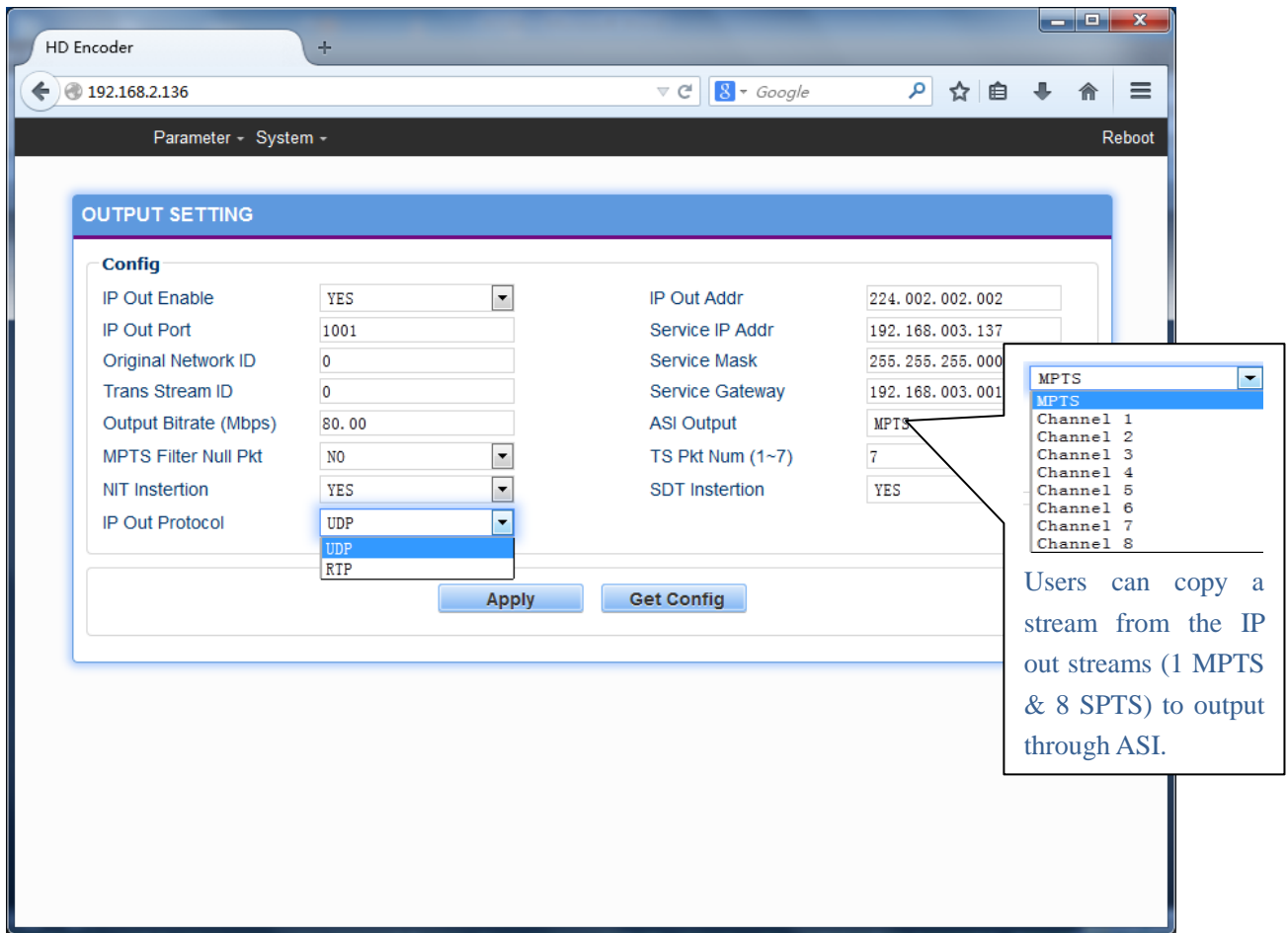
Figure-6

After setting the parameters, click "Apply" to save the setting.

## Save Load

From the menu on left side of the webpage, clicking "Save Load", it will display the screen as Figure-7 where to save or restore your configurations.
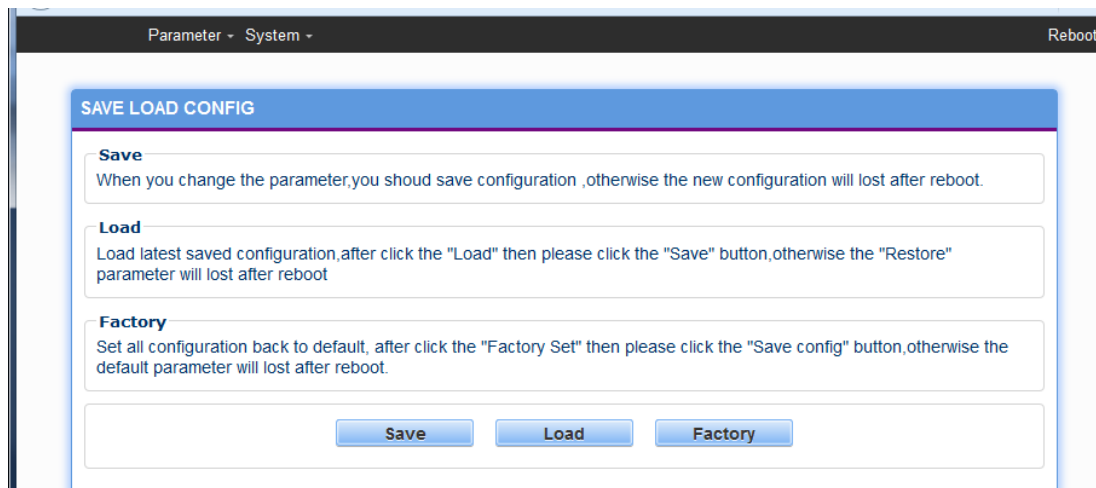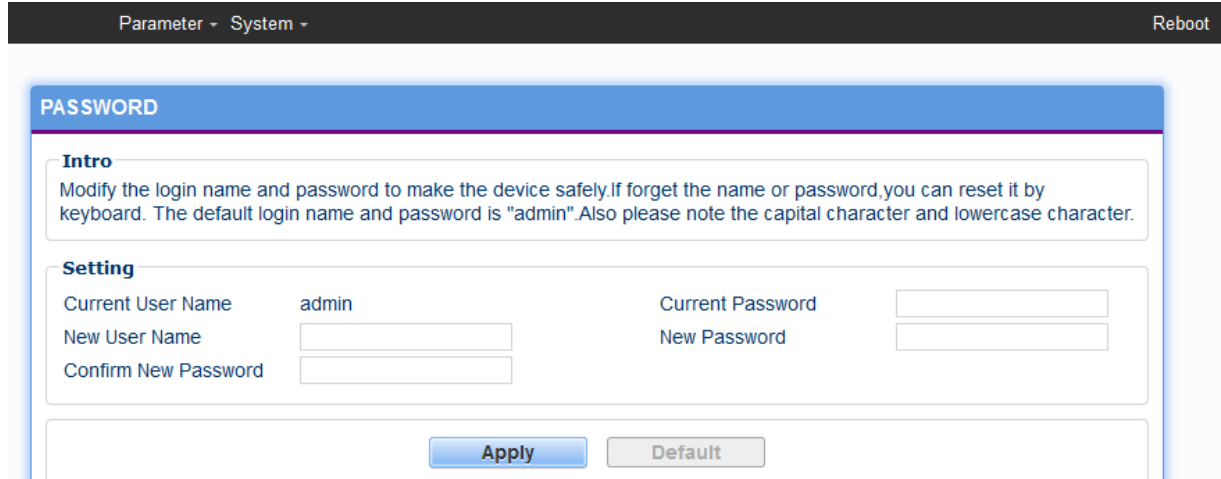


Figure-7

## Password

When user clicks "Password", it will display the password screen as Figure-8. Here user can change the Username and Password for login to the device.



Figure-8

## Network

When user clicks "Network", it will display the screen as Figure-9. It displays the network information of the device. Here user can change the device network configuration as needed.



Figure-9

# Chapter 7 Troubleshooting

THOR's ISO9001 quality assurance system has been approved by the CQC organization. We guarantee the products' quality, reliability and stability. All THOR products haven passed all testing and manual inspections before they are shipped out. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by THOR. To prevent a potential hazard, please strictly follow the operation conditions.

**Prevention Measures**

➢ Installing the device in a place where the environmental temperature is between 0 to 45 °C
➢ Making sure the unit has plenty of ventilation for the heat-sink on the rear panel; and other heat-sink bores if necessary
➢ Checking the AC input within the power supply and ensure it is working, the connection is correctly installed before switching on device
➢ Checking the RF output levels to stay within a tolerable range, if it is necessary
➢ Checking all signal cables have been properly connected
➢ Frequently switching on/off device is prohibited; the interval between every switching on/off must be greater than 10 seconds.

**Conditions needed to unplug power cord**

● Power cord or socket damage.
● Any liquid that got into the device.
● Any stuff that could cause a circuit short
● Device in damp environment
● Device has suffered from physical damage; i.e. it fell off a rack.
● Longtime idle.
● After switching on and restoring to factory setting, device still won't work properly.
● Maintenance needed on device

# Chapter 6 Packing list

- H-8HD-EMH                                                    1pcs
- User's manual                                                1pcs
- HDMI cable                                                   8pcs
- ASI cable                                                    1pcs
- Power cord                                                   1pcs

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