IRENIS®

MPEG-2 Encoder with Multiplexer,
with 8x CVBS Input,
with ASI & IP Output

User’s Manual

EMU-8110
DIRECTORY

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Chapter 1 Product Introduction

1.1 Outline

This IRENIS EMU-8110 encoder supports 8 AV (8 CVBS and 8 unbalanced analog stereo audio) and 1 ASI input, after multiplexing process, it gives ASI and IP output at the same time. Users can manage the device through the NMS. Besides, it supports MPEG-2 video encoding, and the audio encoding supports MPEG1-LAYER 2, AAC and AC3. In conclusion, its high compatibility and integrated design make this device widely used in a variety of digital TV broadcasting systems.

1.2 Main Features

- Support 8AV,1 ASI Input
- Support MPEG2 format encoding
- Support PAL NTSC format
- Support Maximal 108Mbps ASI input
- 0.8Mbps~20Mbps each channel
- Support D1, HD1, 2/3D1, 3/4D1 resolution
- Support multiplexer function
- Support ASI and IP output
- Support Keyboard and LCD operation
- Update device through NMS port
## 1.3 Specifications

| **Input** | **Resolution** | PAL: 720×576_50i, 704*576_50i, 640*576_50i, 320*288_50i, 176*288_50i, 176*144_50i  
  NTSC: 720×480_60i, 544×480_60i, 352×480_60i, 320×240_60i, 176×240_60i, 176×120_60i  
 | **Encoding** | MPEG-2 MP@ML  
 | **Bit-rate** | 0.125Mbps~19Mbps each channel  
 | **Rate Control** | CBR/VBR  
 | **GOP Structure** | IPPPP, IBPBP, IBBPB, IBBBP  
 | **Advanced Pretreatment** | De-interlacing, noise reduction, sharpening  
 | **Video** | **Audio** | 8 CVBS inputs, BNC interface  
  8 pairs unbalanced stereo audio input, BNC interface  
  1 ASI input, BNC interface  
  MPEG-2 MP@ML  
  Sampling rate 32 KHz, 44.1 KHz, 48 KHz  
  Bit-rate 32Kb/s—384Kb/s each channel  
 | **Encoding** | 1 ASI input multiplexed with local 8 channels of TS  
 | **Stream output** | 2*ASI output, BNC interface  
 | **System function** | 1 MPTS over UDP, 10/100Base-T Ethernet interface (UDP uni-cast/multicast): 8 SPTS  
 | **Miscellaneous** | LCD/keyboard operating, NMS supporting  
 | **Dimension (W× L× H)** | 482mm×455mm×44mm  
 | **Approx weight** | 4kg  
 | **Temperature** | 0~45℃(work), -20~80℃ (Storage)  
 | **Power** | AC 100V-220V±10%, 50/60Hz  
 | **Consumption** | 17.6W  
 | **Consumption** | 17.6W |
1.4 Principle Chart

![Principle Chart Diagram]

1.5 Appearance and Illustration

Front Panel Illustration:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LCD screen</td>
</tr>
<tr>
<td>2</td>
<td>Indicators</td>
</tr>
<tr>
<td></td>
<td>Power indicator</td>
</tr>
<tr>
<td></td>
<td>TS in: input lock indicator</td>
</tr>
<tr>
<td></td>
<td>CH1-CH8: When program has been multiplexed, the indicator will be on.</td>
</tr>
<tr>
<td>3</td>
<td>UP/DOWN, LEFT/RIGHT keys</td>
</tr>
<tr>
<td>4</td>
<td>Enter key</td>
</tr>
<tr>
<td>5</td>
<td>Menu key</td>
</tr>
<tr>
<td>6</td>
<td>Lock key</td>
</tr>
</tbody>
</table>

Indicate area: All indicators will light on when the device is on the current working state.
Rear Panel Illustration:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 * CVBS input ports</td>
</tr>
<tr>
<td>2</td>
<td>CVBS input serial number from 1 to 8</td>
</tr>
<tr>
<td>3</td>
<td>Video input port</td>
</tr>
<tr>
<td>4</td>
<td>Audio input port (Left &amp; Right channels)</td>
</tr>
<tr>
<td>5</td>
<td>ASI input port</td>
</tr>
<tr>
<td>6</td>
<td>2 * ASI output ports</td>
</tr>
<tr>
<td>7</td>
<td>Data port (for IP signal output)</td>
</tr>
<tr>
<td>8</td>
<td>NMS (Network management port)</td>
</tr>
<tr>
<td>9</td>
<td>Power Switch</td>
</tr>
<tr>
<td>10</td>
<td>Fuse</td>
</tr>
<tr>
<td>11</td>
<td>Power socket</td>
</tr>
<tr>
<td>12</td>
<td>Grounding Pole</td>
</tr>
</tbody>
</table>
Chapter 2 Installation Guide

2.1 Acquisition Check

When users open the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- IRENIS EMU-8110 Encoder
- User Manual
- Analog Audio/Video Composite Input Cable
- ASI Cable
- Power Cord

If any item is missing or mismatching with the list above, please contact local dealer.

2.2 Installation Preparation

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

The main content of this chapter including:

- Checking the possible device missing or damage during the 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:

2.2.2 Environment Requirement
<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Hall Space</td>
<td>When user installs machine frame array in one machine hall, 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.</td>
</tr>
</tbody>
</table>
| Machine Hall Floor  | Electric Isolation, Dust Free  
Volume resistivity of ground anti-static material: $1 \times 10^7 ~ 1 \times 10^{10} \Omega$, Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/m²) |
| 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  
Door & Window: Installing rubber strip for sealing door-gaps and dual level glasses for window  
Wall: It can be covered with wallpaper, or brightness less paint.  
Fire Protection: Fire alarm system and extinguisher  
Power: Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 220V 50Hz. Please carefully check before running. |

### 2.2.3 Grounding Requirement

- All function modules’ good grounding designs are the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Coaxial cable’s outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device’s frame should be no less than 25mm².
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 25mm².

2.2.5 Device Grounding

Connecting 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
  
  User can insert one end into power supply socket, while insert the other end to AC power.

- Connecting Grounding Wire
  
  When the device solely connects to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than 1Ω.

➤ Caution:

Before connecting power cord to IRENIS EMU-8110 Encoder, user should set the power switch to “OFF”.

2.4 Signal Cable Connection

The signal connections include the connection of input signal cable and the connection of output signal cable. The details are as follows:

2.4.1 Unbalanced audio and CVBS video input cable illustration:
2.4.2 ASI output cable illustration:

![ASI output cable illustration](image)

2.4.3 Network Cable illustration (CAT5):

![Network Cable illustration (CAT5)](image)

2.4.4 Unbalanced audio and CVBS video input connection

User can firstly find the CVBS input connector on the device according to the connector mark described on the rear panel illustration, and then connect the analog CVBS video and unbalanced audio cables (in the accessories). One end is connected to the signal source equipment while the other end to the encoder’s CVBS input port. The encoder’s Analog Composite Video input port and its connection are illustrated as follows:
2.4.5 ASI output interface connection

User can firstly 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:

2.4.6 IP Output Interface connection

Users can firstly 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
Users can firstly 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 connector, while the other end to the computer or the PC. The encoder’s NMS connection is illustrated as follows:
Chapter 3 Operation

This IRENIS EMU-8110 Encoder’s front panel is user operating interface. Before operating, user can decide whether directly use the default setting or customize the input and output parameters setting. The detail operations go as follows:

**Keyboard Function Description:**

**ENTER:** Activating the parameters which need modifications, or confirming the change after modification.

**MENU:** To cancel presently entered value, resume previous setting and return to previous menu.

**LEFT/RIGHT:** To move the “►” to choose or set the parameters.

**UP/DOWN:** To modify activated parameter or page up/down when parameter is inactivated.

**LOCK:** To Lock the screen / cancel the lock state. 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.

At the “Factory Configuration” page, user can 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 serial number, encoding system (P: PAL; N: NTSC) and input real-time encoding bit-rate in the second row in turn. It shows as below:

<table>
<thead>
<tr>
<th>8 in 1 Encoder</th>
<th>23.485 Mbps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1P 02.94M</td>
<td>2N 02.73M</td>
</tr>
<tr>
<td>3P 02.92M</td>
<td>4N 02.90M</td>
</tr>
</tbody>
</table>

### 3.2 General Setting
By pressing LOCK key, users can 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, users can press the ENTER key to enter the specified submenu to modify the device parameter.

### 3.2.1 Input Setting

Under this menu, users can 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 from Encoding Channel 1 to Encoding Channel 8. The setting principle is the same for Encoding Channel 1-8, so here this manual just takes one channel as the example to 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

After users enter the submenu, the interface will turn into the following pages, and then users 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 Input
- 1.1.1.2 Brightness
- 1.1.1.3 Contrast
- 1.1.1.4 Saturation
► 1.1.1.5 Hue 1.1.1.6 Aspect Ratio
1.1.1.7 Coding Type 1.1.1.8 Resolution

► 1.1.1.9 Rate Mode 1.1.1.A Bit Rate
1.1.1.B Max Bit Rate 1.1.1.C Gop Struct

► 1.1.1.D Video Sharp 1.1.1.E MP4 Profile

➢ **Input**

This is for user to check the input port type and it is read-only. It will identify the input port type automatically.

1.1.1.1 Input

CVBS

At this interface, by pressing ENTER again, users can select the input format, which includes 8 options. Pressing 1.1.1.1, the operation interface will turn up as following page:

**NOTE:** Below explanations are applied in this entire manual.

1) When user enter 1.1.1.1, the LCD displays only one option which is the device’s current option which is marked with square bracket when user presses ENTER again to enter the operation interface.

2) “01/04” in the up-right corner indicates there are all together 4 pages and the LCD is displaying the 1st page currently.

1.1.1.1 Input Format

01/04

PAL-B/G/H/I/D

PAL-60

➢ **Brightness/Contrast/Saturation and Hue Setting**

User can adjust the relevant parameters of input video in submenus of Brightness, Contrast, Saturation and Hue. The adjustable range is 0~255, while the adjustable range of Hue is -128~127. The figure outside the parentheses is decimal while the inside is hexadecimal.
NOTE: Below explanations are applied in this entire manual.

1) To press ENTER to start editing.
2) To move the underline through LEFT/RIGHT keys.
3) To modify the value of underlined character through UP/DOWN keys.

1.1.1.2 Brightness
128 (0*80)

1.1.1.3 Contrast
128 (0*80)

1.1.1.4 Saturation
128 (0*80)

1.1.1.5 Hue
± 000 (0*00)

► Aspects Ratio Setting

In this interface, users can set the video aspect ratio, which includes 4 options. Pressing 1.1.1.6, the operation interface will turn up as following page:

1.1.1.6 Aspect Ratio
01/02
[4:3 MPEG 2] 1:1 MPEG 2

► Coding Type

This device supports only MPEG2 encoding and it’s read-only in this interface.

1.1.1.7 Coding Type
01/01
MPEG 2

► Resolution

Under this interface, users can set the video resolution (Refer to 1.3 Specifications in Chapter 1 for details). Pressing 1.1.1.8, the operation interface will turn up as following page:


- **Rate Mode**

User can 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.

- **Bit Rate/Max Bit Rate**

User can modify the video encoding bit rate, and maximal bit rate under menu 1.1.1.A-1.1.1.B.

- **GOP Structure**

**GOP**: Group of Picture

Users can set the GOP frames in this interface. There are 4 options provided as follows:

- **Video Sharp Setting**

Users can set the Video sharp in this interface, and the LCD will display the following page. There are four options (Sharp, Common, Flat and close). If users choose the Close option, the Video Sharp function is closed. Users can refer the following interface for details.
> **MP4 Profile Setting**

Users can set the MP4 Profile in this interface, and the LCD will display the following page. There are three options (SP1, SP2 and ASP) to select.

**NOTE:** This function is not workable so far.

> **Audio Bit Rate Setting**

User can set the input audio bit-rate by pressing the enter key to enter the main editing interface. And there are: 32Kbps, 48Kbps, 56Kbps, 64 Kbps, 80Kbps, 96 Kbps, 112 Kbps, 128 Kbps, 160 Kbps, 192 Kbps, 224 Kbps, 256 Kbps, 320 Kbps, 384 Kbps. After the modification, users can press enter key again to take the modification into effect. The LCD will display the following pages:

> **Audio Sample Rate**

Under this interface, users can set the input audio sample rate. Users can set relevant audio sample rate by moving UP/DOWN keys. After the setting, users can press enter key again to take the modification into effect. And the LCD will display the following page:
Audio Format Setting
AAC: Advanced Audio Coding
AC3: Audio Coding
Users can set the input audio format in this interface, and the 5 options are MPEG1 Layer II, PD-CE (AC3-CE), DD-PE (AC3-PE), LC-AAC, and HE-AAC. When users enter the main editing menu, the LCD will display the following page:

Gain
Users can modify the Gain value in this interface.

3.2.1.3 System Settings

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

Program Number Setting
Users can set the program number by pressing ENTER to enter this submenu. The LCD will display as below:
Video/Audio/PMT/PCR PID Settings

Users can 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**
  0*0102
- **1.1.3.3 Audio PID**
  0*0103
- **1.1.3.4 PMT PID**
  0*0103
- **1.1.3.5 PCR PID**
  0*0101

IP Enable

- **1.1.3.6 IP Enable**
  YES [NO]

Out Address/Out Port Setting

User can modify the out address and out port in below interfaces.

- **1.1.3.6 Out Address**
  224.002.002.002
- **1.1.3.8 Out Port**
  1002

Null Packet

- **1.1.3.9 Null Packet**
  YES [NO]

Users can 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

Users can decide whether to open the multiplexing function of the device.

- **Channel Mux**

Under this interface, users can decide whether to multiplexer 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.

<table>
<thead>
<tr>
<th>1.1.4.1 Channel Mux</th>
<th>01/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ YES]</td>
<td>NO</td>
</tr>
</tbody>
</table>

3.2.2 ASI Setting

Users can 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**

<table>
<thead>
<tr>
<th>2.1 Parse ASI Prog</th>
<th>Prog: 006 Out: 003</th>
</tr>
</thead>
<tbody>
<tr>
<td>001 HK1</td>
<td>√</td>
</tr>
<tr>
<td>002 HK2</td>
<td>x</td>
</tr>
</tbody>
</table>

3.2.3 Output Setting

By press the enter key in the main editing interface, use can set the device output parameter. The device will display the following page after users 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 Output Mode**
- **3.7 ASI Output**
- **3.8 UTC Time Config**
- **3.9 Null PKT**
### 3.2.3.1 IP Out Enable

This is the new function of this EMU-8110 encoder, user can decide whether to open the IP output function by press 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

If users enable the IP output function, then users can set the device IP output address in this interface. After users press 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, users can set the encoder IP output port number by press the ENTER key to enter the main editing interface.

- 3.3 IP Out Port
  - 01001

### 3.2.3.4 Trans Stream ID

Users can 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

Users can modify the bit rate of output stream in this interface after pressing the ENTER key to enter the main editing page.
3.2.3.6 Output Mode

Users can set the output mode in this interface after pressing the ENTER key to enter the main editing page.

<table>
<thead>
<tr>
<th>3.6 Output Mode</th>
<th>01/01</th>
</tr>
</thead>
<tbody>
<tr>
<td>[IP] 8IP 9IP</td>
<td></td>
</tr>
</tbody>
</table>

3.2.3.7 ASI Output

Users can set the ASI output in this interface under this menu, and there are 9 options: MPTS, Channel 1-8.

<table>
<thead>
<tr>
<th>3.7 ASI Output</th>
<th>01/03</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MPTS] Channel 1 Channel 2 Channel 3</td>
<td></td>
</tr>
</tbody>
</table>

3.2.3.8 UTC Time

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

<table>
<thead>
<tr>
<th>3.8 UTC Time Configuration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-01-29 15:45:03</td>
<td></td>
</tr>
</tbody>
</table>

3.2.3.9 Null Packet

<table>
<thead>
<tr>
<th>3.9 Null Packet</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YES [NO]</td>
<td></td>
</tr>
</tbody>
</table>

3.2.4 Network Setting

Users can set the network parameters by pressing the enter key, and the LCD will display the following interfaces.
4.1 IP Address
192.168.002.136

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. When the MAC address is fffffffff, users must modify the address through special software, otherwise, the IP output data will be filter out when the IP stream passes through the router.

3.2.5 Saving Configuration

Users can save the modification by pressing the enter key, and it will display the following interface when user press the enter key.

5 Saving Config
YES [NO]

01/01

3.2.6 Loading Configuration

In this interface, users can select the modified configuration and the factory defaulted configuration. Users can 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

Users can 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 2.05F HW 02

3.2.8 Language

User can select the needed language under this submenu:

8 Language
中文 [ENGLISH]
Chapter 4 NMS Operation

Network Management System Profile

Network management system is applied to digital TV equipment operation, control and management and parameters setting, etc. It centralizes digital TV equipment through network.

4.1 Installation

The software doesn’t need special installation. User can just copy “Network Management Software X.XXY.exe” to the specified directory (X.XX is version number, Y represents language. For example: the version number of network management software 4.12E.exe is 4.12 English version) or place different versions of network management software to the same directory. When the network management software is running, it will generate two documents as follows:

- Network management software X.XXY.log (It preserves the log file.)
- Info. Bin (It’s the user configuration data.)

4.2 Software Operation

4.2.1 Login Interface

A login interface will pop up firstly when the software is running and give user prompts to input user name and password (The default user name is admin and no password. User can add users and passwords as needed. Details please refer to 4.4.3 in 4.4 Other Settings.). The menu shows as follows:
User can login the NMS by pressing **OK** key after inputting user name. Upon the inputs, the software will verify them with database record automatically and the main interface will appear.

### 4.2.2 Main Interface

User can create a device node tree in the left column by adding, modifying and deleting the device node. This software provides a powerful node operation function, and the user can edit various parameters in the device tree for management and classification.

### 4.2.3 Adding Frequency Point
The Add Freq Point dialog box pops up when the user clicks the Add Freq Point item in the Edit pull down menu on the menu row. The device will confirm the given frequency while user clicks OK.

User can also click right mouse key to pop up the short-cut menu in device tree or in the left blank column, then the corresponding dialog box will pop up by choosing Add Main Freq Point. The device will confirm the given frequency while user clicks OK.
4.2.4 Adding Equipment under Given Frequency Point

User should choose the frequency point in advance, and then the dialog box of Add Equipment will pop up when user clicks “Add Equipment” item in the Edit pull down menu on the menu row.

4.2.5 Edit Equipment Interface
User should follow the steps as below:

- Inputting the device IP Address
- Inputting the port
- Inputting the Equipment Name
- Choosing the connected equipment type in drop down list of “Equipment Type” by clicking the “▼” Or Click “?” to auto search the type of device.

**NOTE:**

1. The default IP of the IRENIS EMU-8110 Encoder is 192.168.2.136, also you can check its IP address in the front panel of device in case the IP changed unexpected.

2. The PC IP address and device IP address should be in the same network. For example the Device IP is 192.168.2.136, sub mask is 255.255.255.0. So the PC IP address should be 192.168.2.X (1<X<255), sub mask is 255.255.255.0. User can use ping command to confirm these two are in same network or not.

Click OK, it will appear as below:

4.2.6 Delete Equipment

User can choose the equipment to be deleted in the left column, and then click the
“delete” item in the pull down menu which appears by clicking the right mouse key.

4.2.7 Save Configuration

After finishing all the parameters setting, user can click the button on the toolbar to save the modifications to the device’s flash, while user can also reload the saved parameters from device’s flash and refresh the device’s parameters setting according to the loaded values by clicking

Alternatively, user can also click the button on the toolbar to popup the “save file” dialog box, which gives prompts to save all the device’s parameters as binary files in the computer’s hard disk.

Similarly, user can choose to click the button on the toolbar to popup the read file dialog box, to read the stored binary file and set the device’s parameters according to the loaded binary files.
4.3 IRENIS EMU-8110 Encoder Operation

User can choose the 8 in 1 MPEG-2 encoder in the device tree; the procedure will display the encoder interface in operating area. The interface is mainly composed of encoding video parameters, audio parameters and the encoding system parameters, output parameters and etc.

4.3.1 Parameters Setting

Users can click Equipment Name on the node tree and enter in the Parameter interface by clicking and or to configure the parameters.

4.3.1.1 General Parameters

**Set:** to make the current parameters, which shows in the NMS software, activate.

**Get:** to read the current device’s activating parameters and show them on NMS software.

- **IP Out Enable**
Check the checkbox with “✓”, then the IP output is enabled, otherwise it is not. Users can decide whether to open the IP output function or not. Users can modify the IP address here as well.

- **IP Out/Service IP Address**

Users can set the service IP and the TS output address by modifying the value in these two fields.

**Pay attention to the 2 situations below:**

**MPTS:** Keep the Service IP Address **different** from the IP Out Address.

**SPTS:** Keep the Service IP Address the **same** with the IP Out Address.

- **Original Network ID**

This 16-bit field gives the label identifying the network ID of the originating delivery system. The value ranges from 0 to 0xFFFF.

- **Transport Stream ID**

This is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. The value ranges from 0 to 0xFFFF.

- **Output Stream (Mbps)**

This refers to output bit-rate, which includes the effective bit-rate of encoding channel 1-8, the effective bit-rate from ASI input and the bit-rate of stuffed null packets.

- **Output Port**

Users can set the output port by modifying the value in this field.

- **ASI Output Channel**

![ASI Output Channel](image)

This device supports 1 MPTS (Multiple Programs Transport Stream) and 8 SPTS (Single Programs Transport Stream) output. User can click ▼ to trigger a pull-down list to select the output type.

- **Device Mode**

![Device Mode](image)

User can click ▼ to trigger a pull-down list to select the device mode.

- **NIT Insertion**
In this field, users can decide whether to effect the NIT insertion function.

- **MPTS Filter Null Packet**
  
  If this function is effected, then the null packets in IP output stream will be filtered.

- **PSI/SI Editor**
  
  This button will trigger the PSI/SI Editor for some users’ advanced usage. For more detail, please refer to the manual of PSI/SI.

### 4.3.1.1 Video Parameters

**NOTE:**

1. **Bit Rate Mode & Max Video Bit-rate**

Users can only modify the Max Video Bit Rate when the Bit-rate mode is VBR, while CBR mode is selected, Max Video Bit Rate box turns gray and users can just check it.

![Image of video parameters interface](image)
2. If any parameter is modified, it is supposed to click Set to make the modified parameters activate and click Get to read and effect the current device’s activating parameters.

4.3.1.2 Audio Parameters

Users can set the rate or format of each item in this area by clicking the pull-down trigger.

User can set the value of Audio Gain by moving the slider directly inputting the value in the right box. The adjustment range is 0-16.

4.3.1.3 System Parameters
IP Output Enable
Check the checkbox with “√”, then the IP output is enabled, otherwise it is not. Users can decide whether to open the IP output function or not. Users can modify the IP address here as well.

IP Out Address/Output Port
Users can set the service IP and the TS output address by modifying the value in these two fields.

Original Network ID
This 16-bit field gives the label identifying the network ID of the originating delivery system. The value ranges from 0 to 0xFFFF.

Transport Stream ID
This is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. The value ranges from 0 to 0xFFFF.

MPTS Filter Null Packet
If this function is effected, then the null packets in IP output stream will be filtered.

4.3.2 Multiplexing
The programs in the left column represent all input programs and which port they come from, while the programs in the right column represent the output programs and from which port they are from. User can parse the programs of each channel and multiplex those programs to the output. Moreover, user can modify the output programs’ Program Name, PMT, PCR, video, audio PID.

- **Pid Mapping**: Check this box the set the PID Mapping
- **Refresh Input**: To refresh the inputting terminal and get the inputting information
- **Refresh Out**: To refresh the outputting terminal and get the outputting information
- **→**: Multiplex the input programs to the output channels after selecting the target program with ✔. The system will automatically allot the program to the relevant output channel.
- **←**: Cancel the multiplexed programs.
- **Modify Program**: 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 as below:
Select the target item and input the new value in the box below, then click and to effect the modification.

Timeout 60 sec: The parsing overtime value

4.3.3 Tables

4.3.3.1 PID Filter Table

Users can operate PID filter in this table by checking the check boxes of corresponding items and click CONFIRM to effect.
**Refresh**: getting PID filter table from the device

**Setting**: submitting the PID filter table to the device

**Check All**: selecting all the selections of the list

After user selects one PID in the table, then the corresponding output PSI/SI table will not be sent to the output stream.

### 4.3.3.2 PID Pass

User can decide to bypass the inputting PID as needed in this interface.

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.

The display will show as below when user clicks “Add” button.
Input PID and Output PID

The Old (Input) PID is the PID number in the TS from given Port. The correspondent New (output) PID number could be same as input PID number while it could be different if a PID remapping is needed.

Modify the data as needed and click OK to confirm. The PID then will be bypassed and listed in the table as below.

<table>
<thead>
<tr>
<th>Index</th>
<th>Input Channel</th>
<th>Input PID(0x)</th>
<th>Output PID(0x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>101</td>
<td>101</td>
</tr>
</tbody>
</table>

User can also modify or delete the added PID through the corresponding buttons at right.

4.3.3.3 NIT Parameters

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.

Network ID: The parameter describes the output TS’s network ID
The parameter describes the output TS’s network name.

**Insertion private description**

- **Insert Private Description**: 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.

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

  - **Descriptor Data**: The Descriptor Data is the detailed information of the private description.

**Replace NIT Table**

After checking the checkbox, the NIT editing menu is active. And also the device will insert the EIT table into the output TS.

- **Replace NIT**: It means to replace the NIT table when users select it, and then users can edit the NIT table and output it.

- **Add**: Users can add the cable transmission descriptor in this Add button, and it will pop up the following dialogue box, say, the added descriptor is apply for the DVB-C network.

![NIT QAM Table](image)

The interface will show as below after the NIT parameters being added:
The “Modify” button will trigger a modify window and allow user to modify the selected items in the NIT.

The “Delete” button will remove the selected items in the NIT.

The set “Button” will send the NIT to the chosen output Port.

4.3.4 Real-time Monitor

There will be a real-time bit rate chart generating in the monitor for users to check the bit rate information.

4.4 Other Settings

4.4.1 Difference between Set and Remote Save

In many cases during the configuration of parameters in NMS, users save the modified configuration by clicking “Set”, in which way the configuration can only be saved temporarily and will restore the last saved configuration if the device reboots. To save the
configuration permanently, it is required to operate through “Remote Save” on the toolbar explained in 4.2.7.
This is the difference between “Set” and “Remote Save”.

4.4.2 IP Modification

Users can click Operate and select Modify IP in the drop-down list, and a dialog box presents itself as shown below. Users input the new NMS IP Address for the device and click OK button to confirm.

Users can then note the indicator light turns red, which signifies the equipment has disconnected. Users then can refer to below prompts to edit the property by inputting the new IP to re-connect the equipment.
Input the new IP Address in the box and click OK button, the device will be connected again.

After finishing all the parameters setting, user should click button on the toolbar to save the modifications to the device’s flash.

### 4.4.3 User Add

When logging in, user will note that the default user name is **admin** and no password. User can add users and passwords as needed.

User clicking “Setting” in the menu bar and selecting “User Setting” in the pull-down list, the below dialog box will pop out as shown below. Select the “Edit Information” by marking the check box with “✓”, user can input the new username and new password as prompts below. It is required to click to add the new user and then click to save the new setting.
Chapter 5 Troubleshooting

Our ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products’ quality, reliability and stability. All our products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by us. To prevent potential hazard, please strictly follow the operation conditions.

**Prevention Measure**

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant 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 greater than 10 seconds.

**Conditions need to unplug power cord**

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed
Chapter 6 Packing list

- IRENIS EMU-8110 Encoder 1 pce
- User manual 1 pce
- Analog Audio/Video Composite Input Cable 8 pcs
- ASI cable 1 pce
- Power cord 1 pce