



ENCODER(4in1MPTS OUTPUT)

USER'S MANUAL

INEN-6202 4 IN 1

INTEL TELECOMMUNICATIONS

Chapter 1 Product Outline

1.1 Outline

INEN-6202 4in1 encoder is a kind of broadcasting level compressing and encoding device which is with high quality and compatible with MPEG-2/DVB standard. It can encode analog Video and audio signals to output ASI. Through DVB standard ASI port, it can interconnect other equipment. This encoder equipped TBC (Time Base Correction) circuit, which greatly reduces the requirements for signal source, ensuring best video/audio quality, providing perfect picture. Besides, it supports all kinds of standard video/audio interface, including analog constituent, analog composite video and mono/stereo etc. The out format of digital compressing data is ASI. Compression output adopts MPEG-2 MP@ML code. Encoder adopts real time encoding and multiplexing AV signals, and generating DVB transport stream. It is fully compatible with MPEG-2 standard.

1.2 Features

- Encoding 4 A/V inputs as 1 MPTS output
- Support 4: 2: 0 encoding
- Hi-Fi audio processing R/L channel, stereo input.
- Output code rate continuously variable, flexible in use.
- Local/Remote net administration possible.
- LCD display, flexible in operation.
- High reliability design, stable in running.
- Code stream multiplexing (as user's setting)
- PID and setting display
- SDT, program provider and program name setting possible

Application Scope

CATV digital head-end;

Satellite digital TV broadcasting;

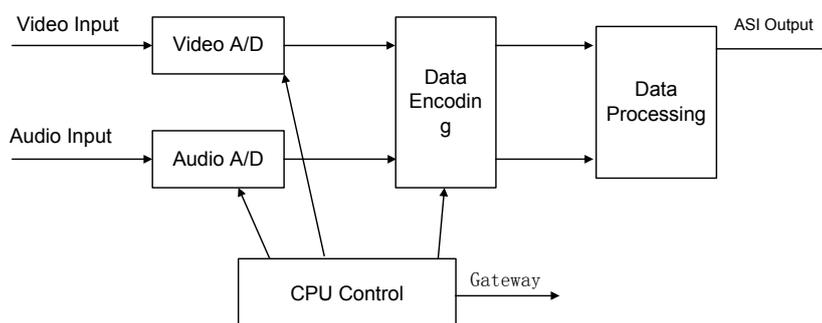
Ground digital TV;

Image monitoring;
 Video on Demand (VOD);
 Remote education;
 TV conference

1.3 Performance Index

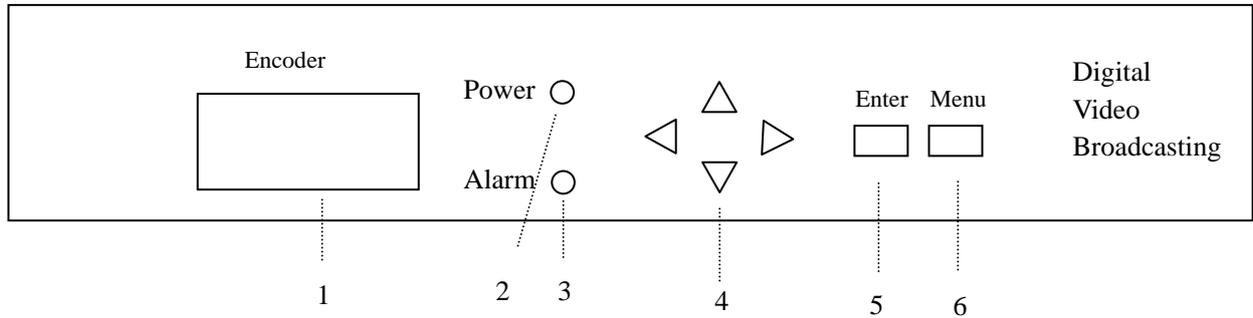
Input Interface	Video Signal	Level 1.0Vp-p Impedance 75 Ω
	S-Video	Level 0.28Vp-p Impedance 75Ω
	Audio Signal	Level 2Vp-p Impedance 600 Ω
Output Interface	ASI	DVB Standard
Output Bit Rate		1~15Mbps Continuous Variable
Video Encoding		Complying International Standard ISO 11172(MPEG-1) and ISO 13818(MPEG-2)
		MPEG-2 Encoding adopts 4: 2: 0MP@ML
		MPEG-2 Adaptive Field/Frame (AFF)
		MPEG-2 Field Based(FB)
Audio Encoding	Sampling Rate	32KHz、44.1KHz、48KHz
	Bit Rate	128、256、384bps
	Features	MPEG-1 II layer, CD quality. Supporting 1 stereo or 2 mono
Miscellaneous	Dimension	44mm×482mm×360mm
	Environment	0 ~ 45℃ (Operation); -20 ~ 80℃ (Storage)
	Power Supply	AC110V/220V±10%, 50Hz, 25W
Resolution	Standard	CCIR601, D1,HD1,S1F,2/3 D1,3/4D1
	PAL	720*576,352*288,176*144,704*480
	NTSC	720*480,704*480,352*240,116*112

1.4 Principle Chart



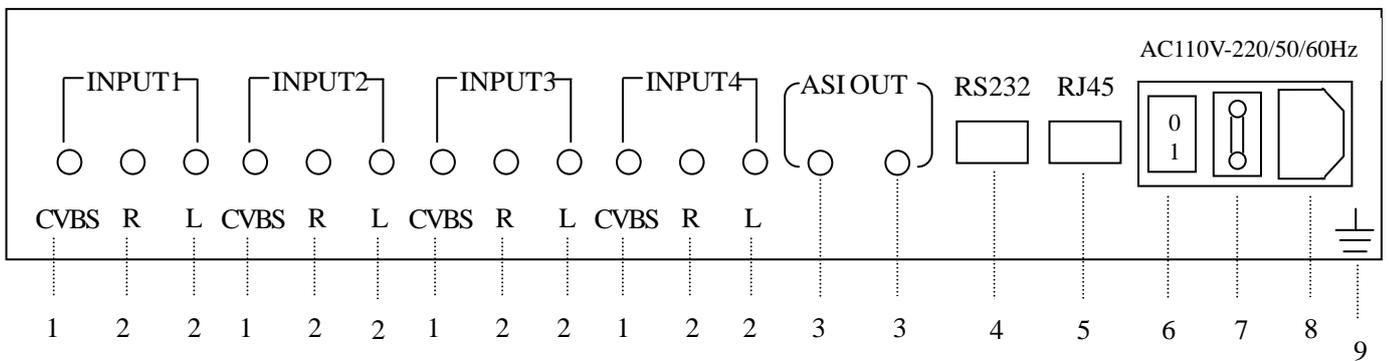
1.5 Appearance and Description

Front Panel Illustration:



1	LCD Display Interface
2	Power Indicator
3	Video Indicator
4	Up /Down/Left/Right Arrow
5	Enter key
6	Menu Key

Rear Panel Illustration



1	Analog Video Input
2	R: Analog component Audio Input (Right Soundtrack) L: Analog component Audio Input (Left Soundtrack)
3	ASI two Output Ports
4	RS232 port
5	Ethernet (RJ45) Port
6	AC Power Socket
7	Fuse
8	Power switch
9	Grounding

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:

- 4 IN 1 Encoder 1
- User's Manual 1
- Analog Audio/Video Composite Input Wire 4
- ASI digital signal output wire 1
- AC Input Power Cord 1

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

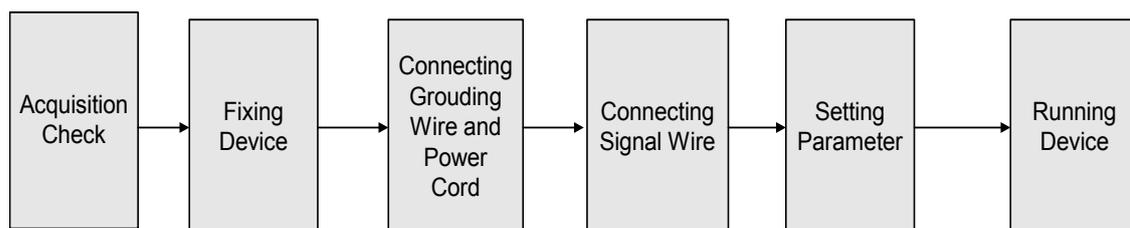
2.2 Installation Preparation

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 4 IN 1 encoder
- Connecting signal wires
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following:



2.2.2 Environment Requirement

Item	Requirement
Machine hall space	When user install machine frame array in one machine hall, the distance between 2 row of machine frames should be 1.2~1.5m and the distance to wall should be no less than 0.8m.
Machine hall floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material:1(107~1(1010(, 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 110V/220V 50Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding designs are the base of reliability and stability of device. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, system must follow this rule.
- Coaxial cable's outer conductor and isolation layer should keep sound 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.
- The 2 terminals of grounding wire must make sure for well electric conducting, and process for antirust.
- It is prohibited that users use other devices as part of grounding wire's electric circuit
- The section of the conjunction between grounding wire and device's frame

should be equal or greater than 25mm²

2.2.4 Frame Grounding

All the machine frames should connect to protective copper strip. The grounding wire should be as short as possible and avoid circling. The section of the conjunction between grounding wire and grounding strip should be equal or greater than 25mm².

2.2.5 Device Grounding

Connecting the device's grounding rod to frame's grounding strip with copper wire.

2.3 Wire's Connection

The power supply outlet is located at the left of rear panel, and the power switch is just above it. The protective grounding wire connective screw is located at the down-left side of power supply outlet

- Connecting Power Cord

User can insert one end into power supply outlet, 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 Encoder, user should set the power switch to “OFF”.

2.4 Signal Wire Connection

The signal connections include the connection of input signal wire and the connection of output signal wire. The connection of input A/V signal wire with 4 in 1 encoder should use BNC connector, and the other output connector should be matched with cable. Encoder has two ASI output ports, Users can choose

either one of them according to signal source equipment's output port, or they also can connect both modes, and then, choose one of them from the Encoder's operation interface. The signal output ports also have 2modes, and each of them simultaneously has signal output. Therefore the lower equipment can flexibly choose either of them based on its needs. The details go as follows:

Audio input wire illustration:



ASI Output Wire Illustration:



2.4.1 Analog Composite Video Input Connection

User can find Analog Composite Video input port on the Equipment, according to connector mark described in the rear panel illustration, and then, connecting the Analog Composite Video cable (in the accessories), one end to the upper equipment and the other end to the Encoder's Analog Composite Video input port. Encoder's Analog Composite Video input port and its connected S-VIDEO cable connector illustrated as follow:



2.4.2 ASI Output Port Connection

User can find ASI output port on the Equipment, according to connector mark described in the rear panel illustration, and then, connecting the ASI cable (in the accessories), one end to the Encoder's ASI output port and the other end to the Multiplexer's or Modulator's input port. Encoder's ASI output port and its connected ASI cable connector illustrated as follow:



Chapter 3 Operation

This Encoder's front panel is user operation interface. Because users start their business, they can decide whether directly use the factory setting, or customize the system, multiplexing and Channel parameter setting.

System Parameter includes: Local IP address setting, Load factory setting, Select language, Set gateway address, Set Subnet Mask.

Multiplex Parameter includes: Channel multiplex select, TS-IDS setting, SD T Insert , Multiplex TS Rate.

Channel parameter includes: channel XX Standard, channel XXPCR-PID、channel XXAUDIO-PID、channel XXVIDEO-PID、channel XXPMT-PID、channel XX TS rate、channel XX audio mode、channel XX audio rat、channel XX audio sample、channel XX audio layer、channel XX resolution、channel XX hue、channel XX chroma、channel XX contrast、channel XX luminance、channel XX GOP。

Equipment supply perfect Chinese and English menu for user select, detail operations go as follows:

3.1 Front Panel Keyboard Function Description

ENTER: Activating the parameters which needs modify, or confirming the change after modification;

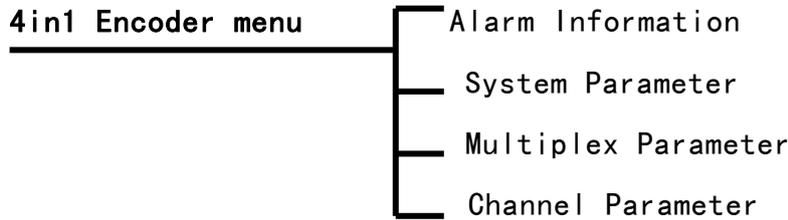
UP、DOWN、LEFT、RIGHT: Selecting parameter needing to be modified, Modifying activated parameter or paging up/down when parameter is inactivated.

MENU: Exit

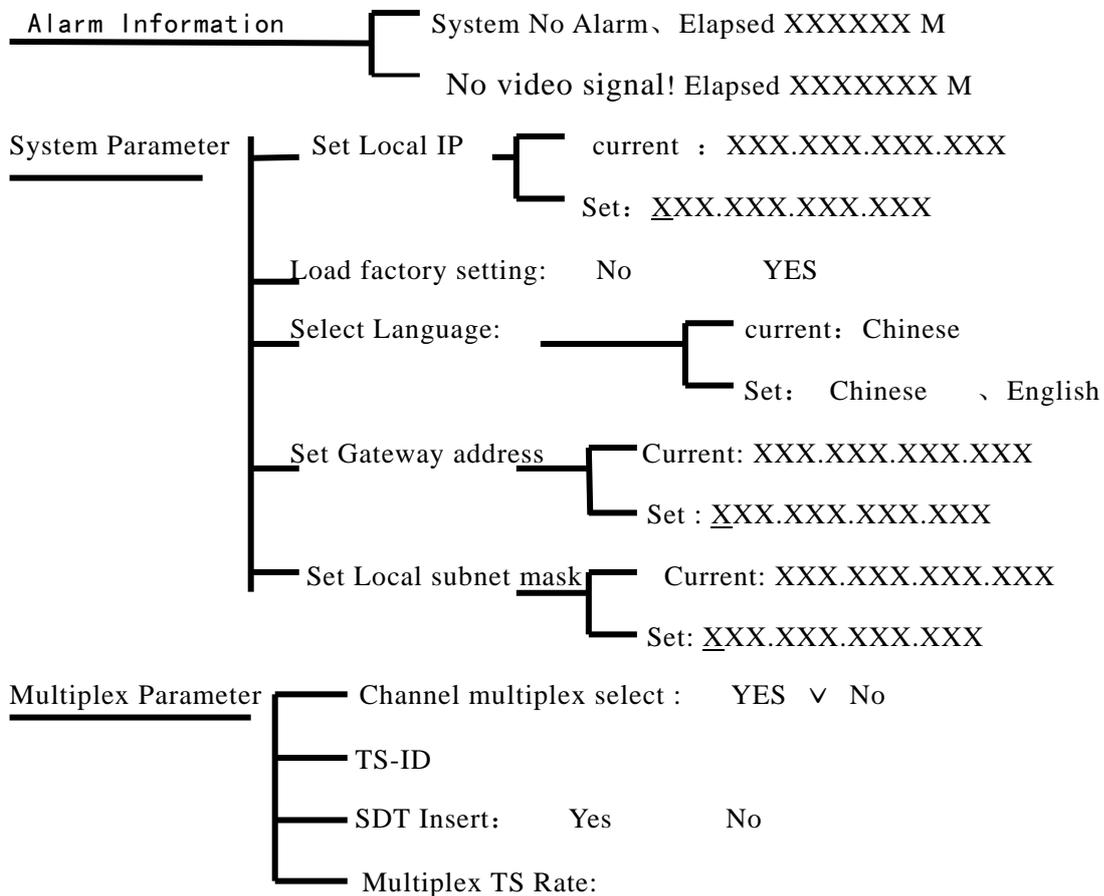
3.2 4IN1 Encoder main menu

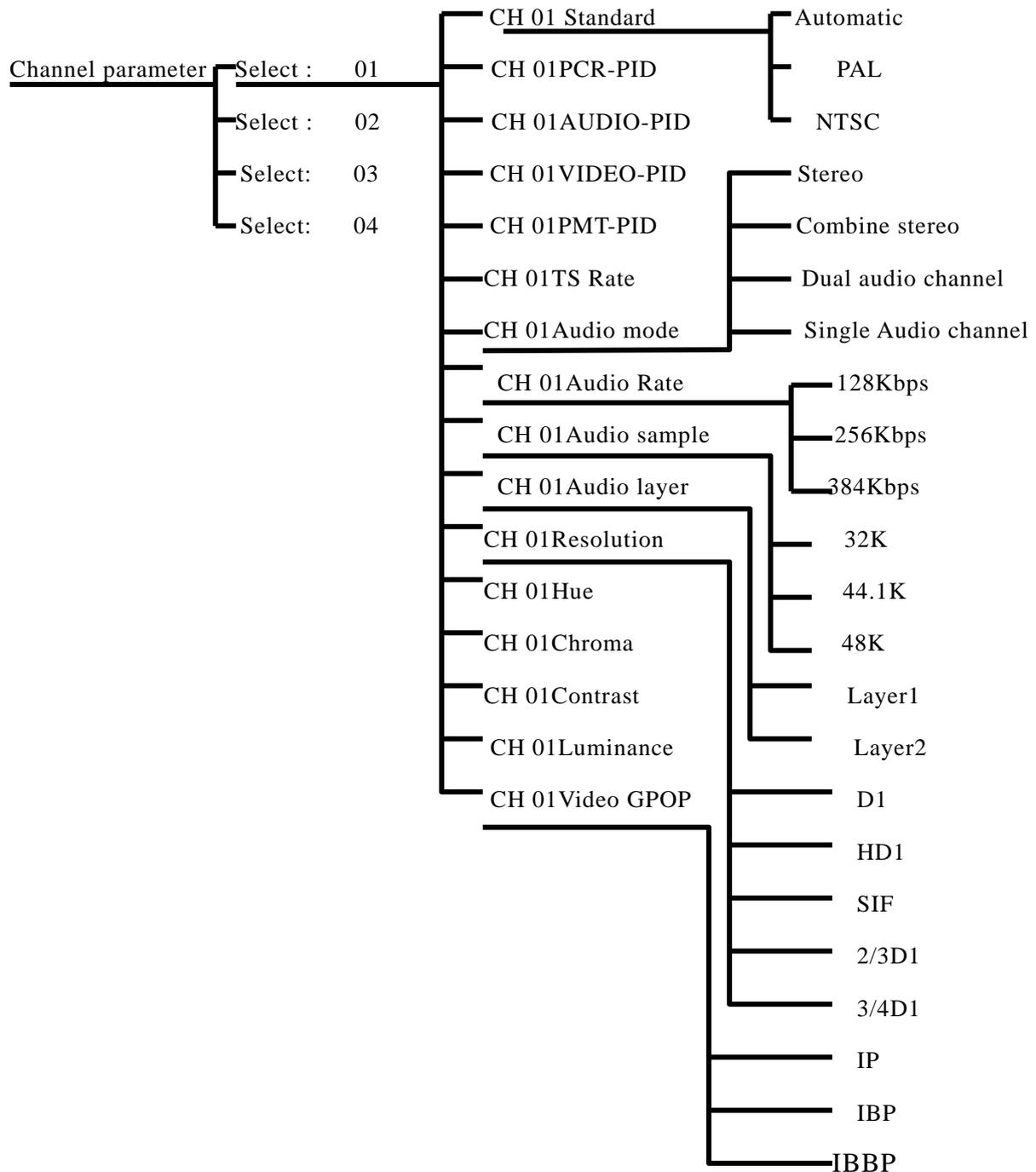
After finishing installation, open power, the LCD will show: system initializing, please be patient ...meanwhile, the green power indicator light on front panel work. One moment later, LCD show light crush out and show: Software V1.0, press enter to unlock. After unlocking , press enter to main menu .(if Alarm—the red alarm light work, two possibilities: one is no video

signal input to Channel 01-04, the other is Channel 01-04 output code rate over high, and total output code rate lower than normal result in code rate overflow and alarm)



3.3 4 in 1 Encoder submenu





3.4 Setting

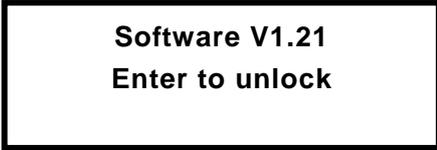
3.4.1 Initialization

After finishing installation according to the former introduction, open power, meanwhile, the green power indicator light on front panel work. the LCD will show:



**System initializing,
Please be patient...**

One moment later, system initializing finished, LCD shows light crush out and show:



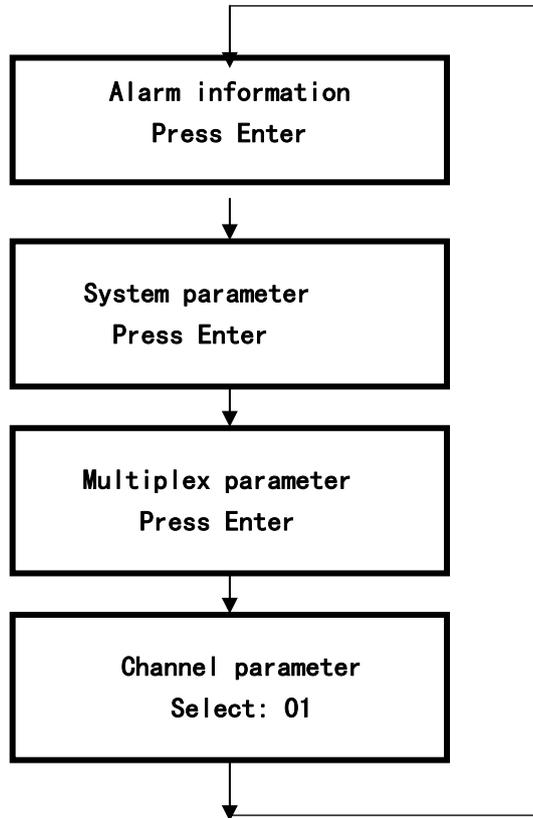
**Software V1.21
Enter to unlock**

Alarm—the red alarm light should not work this time, If it works, two possibilities: one is no video signal input to Channel 01-04, the other is Channel 01-04 output code rate over high, and total output code rate lower than normal result in code rate overflow and alarm.

Notice: If alarm indicator lights on the front panel at this time, there will have two kinds of possibilities: one reason: there is not any input video signal from channel 01-04; the other reason: the output bitrates are set up in a over high bit rates among channel 01-04, so that it leads to overflow alarm because the total output bitrates was set up in lower 6Mbps than the subtotal output bitrates from channel 01-04. After figure out and solve its problem and Alarm indicator will be off.

3.4.2 Enter encoder main menu

Following the above state, press Enter to unlock and enter encoder main menu. Press UP/DOWN, the LCD will show the order circularly:



3.4.3 Enter encoder submenu: checking alarm message

When LCD shows:

Alarm information
Press Enter

Press Enter, LCD shows:

System No Alarm
Elapsed: XXXXXX M

If no any video signal input, Alarm –red alarm light work, LCD shows :

No video signal
Elapsed: xxxxxxxx M

TS rate overflow
Elapsed: xxxxxxxx minutes

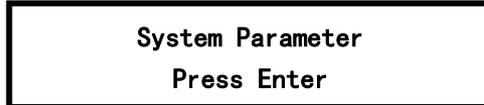
After checking alarm message and solve it, Press Menu for exit.

3.4.4 Enter encoder submenu: system setting

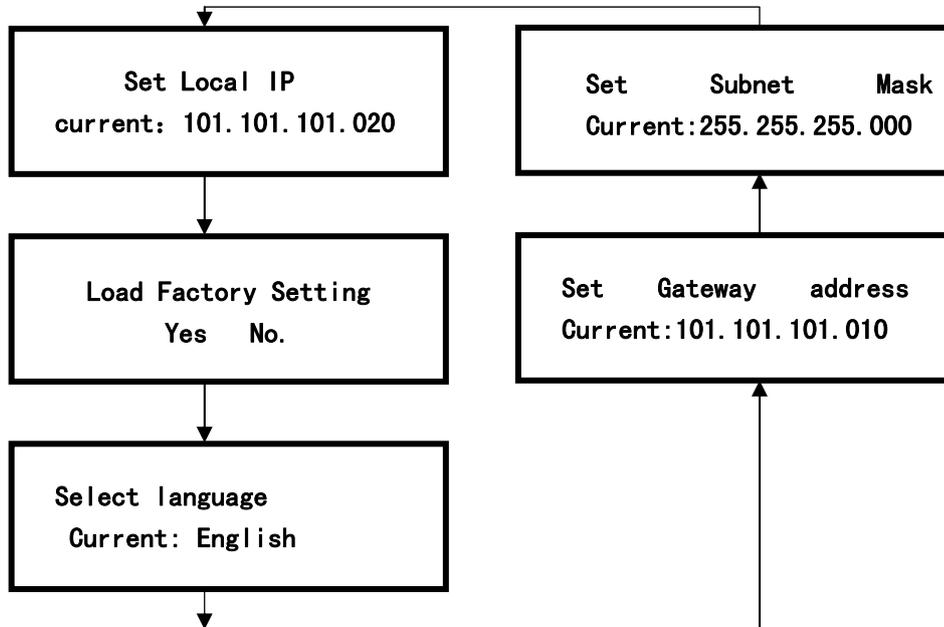
When LCD shows:



Press Up/Down, When LCD shows:



Press Enter into system setting, Press Up/Down, the LCD shows as follow:



When need to modify any setting, only select this item, and press Enter, the “current” will be changed to “setting”, and meanwhile screen show “_”, “*”, Press Up/ Down/Left/Right to select what you want to modify. After modifying, press Enter for confirming and then press Menu to exit

Notice: If setting disorderly because of incautious, please use “Load factory setting” to the initial state.

Operation means: On “system parameter” setting surface, press Enter, then press Up/ Down till show “load factory setting”, Press Enter then you can see

” *”, and then press Left/ Right till show “Yes”, press Enter to Confirm. Meanwhile, the LCD shows “loading factory setting, please wait...”, finishing this, then press Menu to exit.

3.4.5 Enter encoder submenu: Multiplex Parameter

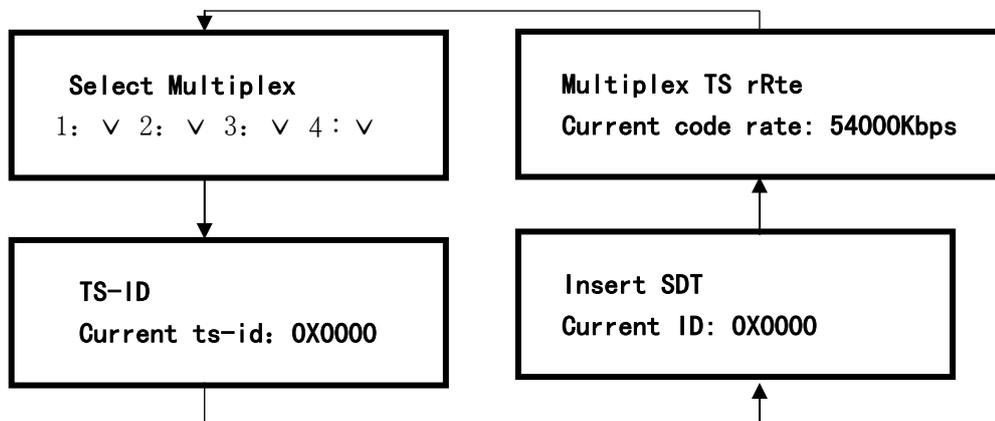
When the LCD shows:



Press Up / Down till LCD shows:



Press Enter into multiplex parameter. Press Up/Down, the LCD shows as follow:



When need to modify any setting, only select this item, and press Enter, the “current” will be changed to “setting”, and meanwhile screen show “_”,“*”,Press Up /Down/Left/Right to select what you want to modify. After modifying, press Enter for confirming and then press Menu to exit.

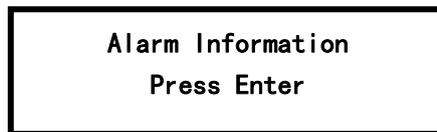
Notice: The reference for setting up “the total output multiplexing bitrates”:

“The total multiplexing bitrates” = subtotal of bit rate for each channel from 01 to

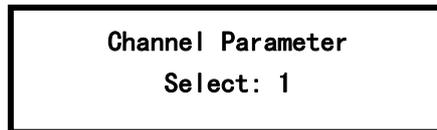
04 plus 6Mbps (total bitrates for each channel+6Mbps). And now we take channel from 01 to 04 for example, the bit rate for each channel is 3.5-4.5Mbps, the total output multiplexing bitrates will be set up as 20~24Mbps. It is calculating like $3.5\sim 4.5\text{Mbps} \times 4 + 6\text{Mbps} = 20\sim 24\text{Mbps}$. It could ensure encoder to work well, and improve encoder working performance, and lower output empty packages very much.

3.4.6 Enter into encoder submenu: Channel parameter

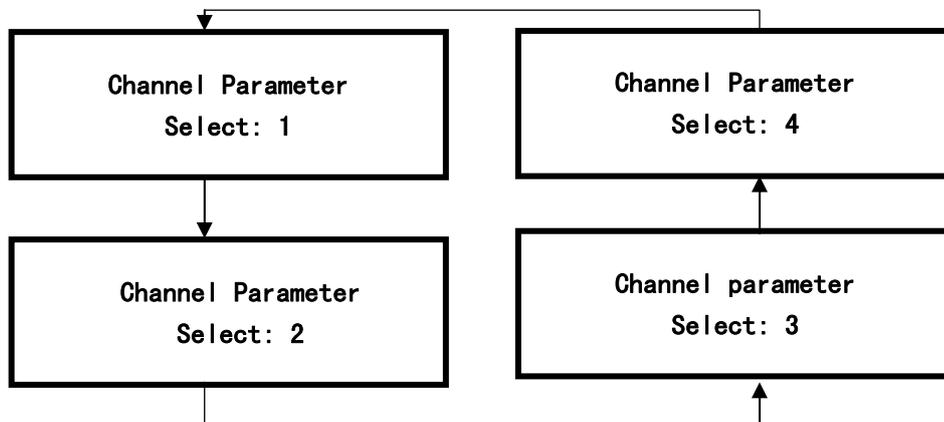
When LCD show:



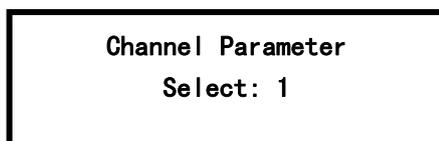
Press Up / Down till LCD shows:



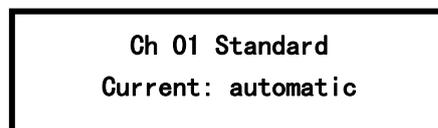
Press Enter into Channel parameter setting. Press Up / Down, the screen shows as follow:



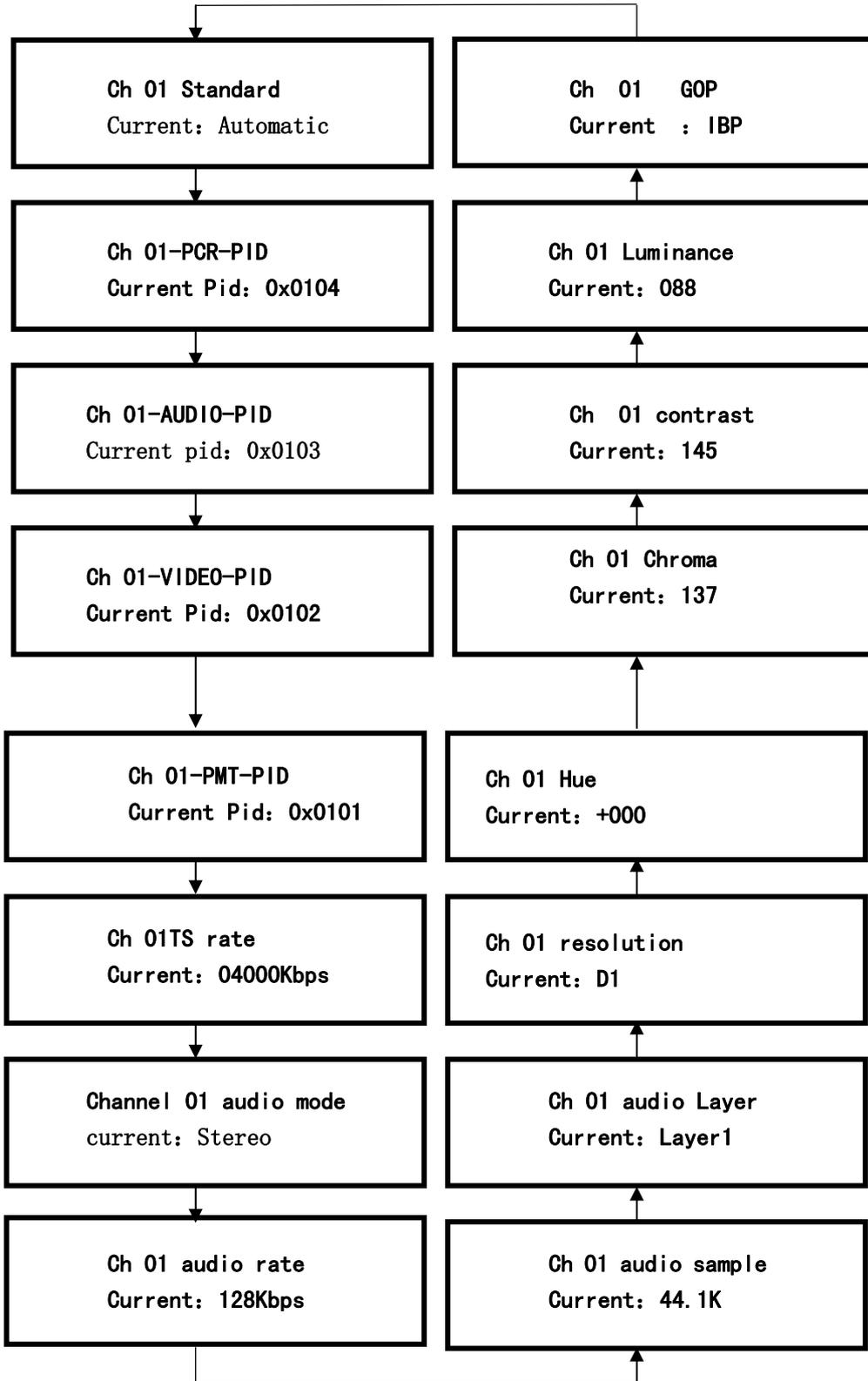
When need to modify any channel parameter, only press Enter when the channel parameter shows. The format of all four channels is the same. Take channel 01 for example: when screen show as follow, press Enter



Press Enter again, the LCD shows:



Press Up/ Down, LCD show as follow circularly:



When need to modify parameter setting of channel 01, only select this item, and press Enter, the “current” will be changed to “setting”, and meanwhile screen show “_”, “*”, Press Up/Down/ Left/Right to select what you want to modify. After modifying, press Enter for confirming and then press Menu to exit.

The modifying of channel 02-04 is similar to channel 01. the only difference is when the screen show “channel parameter, select channel 01”, press Enter, and then press Up / Down to select right channel, and then press Enter, you will enter into the submenu circular screen.

Notice: The reference for setting up” the output rate of channel 01-04”: according to the different TV formats such as PAL or NTSC and the encoding content (fast moving pictures will need higher bitrates and static picture will need lower bitrates), and set up the bit rate of each channel from 01-04 to be 3.5~4.5Mbps (PAL) or 2.5~3.5Mbps (NTSC), it will need to set up four channels separately. Herein, the output TS bit rate is effective bit rate: the total output multiplexing bit rates are the total output bitrates with empty packages. The total multiplexing bitrates must be more than 5-6Mbps than the bit rate subtotal of each channel.

Troubles Shooting

Problems	Reasons	Troubles shooting
No image or sound output for one channel of encoder	Please check whether it is in good connection between AV sockets with its lines; or no any signal source input or work un normally.	Please double check the connection between sockets and its lines, and check whether input signal is in good situation.
Alarm on the front panel is flashing.	1. no any input signal; 2. The total output multiplexing bitrates are set up in lower values or the bitrates for each	Please check input signal and make sure the bitrates for each channel and the total output

	channel are set up in higher values leading to bitrates overflow.	multiplexing bitrates are set up in suitable values.
Program sound is in normal but image is in problem.	The TV format is wrong.	Please check format in encoder and STB as well as TV (PAL/NTSC)
Network management software can not control device, and only could be operated by front panel.	The network interface of PC is not matched or incorrect operations.	Please change another type PC to try again, and learn how to operate NMS.