UC-250E+
MPEG 2 ENCODER

USER MANUAL

Version 2.01 031508

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CONTENT

INTRODUCTION

INTRODUCTION

The UC-250E+ encoder supports the following audio inputs: balanced, un-balanced and digital. It supports the following video inputs: CVBS, S-video, Y/Pb/Pr and SDI digital interface. It supports two programs multiplexed into a TS transport stream. It has two ASI outputs, with the same TS. It can work independently or remotely controlled by a computer, by means of Web Based Network Management Program.

WORKING PRINCIPLE

The encoder consists of the following modules: video front end module, audio front end module, video encoding module, audio encoding module, interface module, multiplexer module and control module.
The video/audio front end modules convert the analog signals to digital signals. The audio and video encoding modules process the digital signal and produce MPEG-2 Transport Stream. Interface module processes the Transport Stream to ASI format output
The multiplexer module packets audio stream, video stream and other streams to the standard stream output.
The control module sets up, loads and controls other modules. It also processes the interface with an external computer for Network Management.

FUNCTIONS

-SDI digital video input, CVBS input and component Y, Pr, Pb input
- Balanced, Stereo Audio Inputs
-MPEG-2 4:2:0 MP@ML video encoding, encode bit-rate range: 1.5-15MBit/s
-Variable GOP
-RJ45 interface
-Human-machine interface: LED, 160x32 LCD and 6 control keys
-The parameters will be restored in the event of an abnormal power off.

ENVIRONMENT

Working temperature: 0 to 55 C
Working humidity: 5 to 80%

Storage temperature: -20 to 80 C
Storage humidity: 5 to 90%

INSTALLATION

FRONT PANEL

The front panel is shown in figure 2-1. It includes a LCD screen, 3 LED indicators and 6 buttons.

- Six buttons: LEFT, DOWN, RIGHT, UP, MENU, OK. These buttons are used to select the Menu and set up the parameters.
- Four LED indicators:
- LED 1 is power indicator: LED on means the power is on.
- LED 2 is the status LED1. LED on means it is encoding and no LED means the input channel is closed.
- LED 3 is the status LED 2. LED on means it is encoding and no LED means the input channel is closed.
- LED 4 is the temperature warning LED. Red LED on means the temperature higher than setting temperature.

The usage of the buttons is:
DOWN: move menu down or changing value/parameters;
UP: move menu up changing value/parameters;
RIGHT: move the cursor to the right;
LEFT: move the cursor to the left;
OK: 1) When setting up the parameters, OK is used to confirm the set up and return to the previous-level menu.
2) When browsing the menu, it enters the next level-menu;
MENU: 1) When setting up the parameters, Menu is used to cancel the setup and return to the previous-level menu;

2) When browsing the menu, Menu is used to return to the previous-level menu.

REAR PANEL

1. Balanced audio2L, XLR
2. Balanced audio2R, XLR
3. CVBS2/Pb input, BNC
4. Y input, BNC
5. Pr input, BNC
6. Network interface, RJ45
7. ASI output 1, BNC
8. ASI output 2, BNC
9. SDI input, BNC
10. CVBS1 input, BNC
11. RS-232 interface, DB9
12. Balanced audio1 L, XLR
13. Balanced audio1R, XLR
14. Switch
15. AC input

XLR connector has the following pin-out:

Pin 1 – Ground
Pin 2 - " + " Line
Pin 3 - " – " Line

OPERATION GUIDE

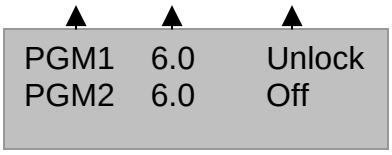
BASIC OPERATION

Step / Application	First	Second	Third
Installation	Network Setting	Logon Network	Read Information
Change Parameters	Logon Network	Read Information	Modify Parameters

MENU OPERATION

START UP

After loading the software, the display will show as follows:



1. Output program number: PGM1 is output program number 1
2. Output bit rate: 6.0 M is output program number 1 bit rate
3. Output program running status: if a signal is input, it is shown as "PAL/NTSC", if it is showing "Off", it will not start the output program.

1." Main Menu" switch to "Operation Menu": click "Menu" key
2."Operation Menu" switch to "Main Menu" : click "Menu" key

MENU STRUCTURE

The operation menu has four levels. The first level menu has four menu items, each has its own child menu. And the child menu has its own child menus again. When encoding, the user can change these parameters with following steps:

1. Press “MENU” to enter the encoder to change parameters.
2. After changing parameter, press “OK” and return to system menu to save the setting.
3. No matter how the encoder is changed, press “MENU” to return last level menu.

Note: If the display is kept still for above sixty seconds, the LCD will return to main menu.

MENU STRUCTURE

Status	First	Second	Third	Fourth
Running	Display bit rate			
Setting	Keyboard lock			
	Version info	Soft: 1.0 hard: 0.1		
	Factory Mode			
	System option	Network Address	IP address	
			Subnet mask	
			Gateway	
		Modify password		
		Device number		
		Warm Temperature		
	Output on/off			
	Set Program1	Program number		
		Set Video	Video input	CVBS1/SDI
			Video PID	0x20 – 0x1FFD
			Video bit rate	1.5-15Mbps
			Video signal	PAL/NTSC
			Video resolution	D1/half-D1/SIF/Q-SIF
			GOP Structure	I/IP/IPB/IPBB
			Spatial filter	Soft/Standard/sharp
			Graphic Quality	Brightness/Contrast/Chroma hue/saturation
			Encode Mode	CBR/VBR
		Set audio1	Audio input	Analog1/SDI
			Audio PID	0x20x0x1FFD
			Audio bit rate	
			Audio mode	Stereo/Joint Stereo/Dual Channel/Single Channel
		Set Audio 2	Audio PID	0x20-0x1FFD
			Audio Bit rate	
			Audio Mode	Stereo/Joint Stereo/Dual Channel/Single Channel
		PMT PID	XXXX HEX	
		PCR PID	XXXX HEX	
		Service name	ASCII	
		Service provider	ASCII	
	Set program2	Output on/off		

		Program number		
		Set Video	Video input	CVBS Y/Pb/Pr
			Video PID	0x20-0x1FFD
			Video Bit rate	1.5-15Mbps
			Video Signal	PAL/NTSC
			Video Resolution	D1/HELF-D1/SIF/Q-SIF
			GOP Structure	I/IP/IPB/IPBB
			Spatial Filter	Soft/Standard/sharp
			Graphic Quality	Brightness/Contrast/Chroma hue/Saturation
			Encode Mode	CBR/VBR
		Set Audio	Audio PID	0x20-0x1FFD
			Audio Bit rate	
			Audio Mode	Stereo/Joint Stereo/Dual channel/Single Channel
		PMT PID	XXXX Hex	
		PCR PID	XXXX Hex	
		Service name	ASCII	
		Service Provider	ASCII	
	Set Analog Radio	Sampling frequency	32000/44100/48000	
		Input1 L Volume	40	
		Input1 R Volume	40	
		Input2 L Volume	40	
		Input2 R Volume	40	

FRONT PANEL OPERATION

PARAMETER SETTINGS

VERSION INFORMATION

Operation Sequence:
Click “MENU” to enter next Menu, select “VERSION INFO” then click “OK”. The display will show as following:

Version Info
Soft: 1.0 Hard: 0.1

The screen is for information only, the user can not change the parameters.

MODIFY PASSWORD

Operation Sequence:
Click “MENU” to next menu, select by ▼▲ key “ System option”;
Then click “OK” key into the second menu;
Select “Password Modify” to click “OK”, the display is shown as following:

Password Modify

Click “ ◄ ► ▲ ▼ “ in “-“, click each symbol, the Cursor Move a bit;

Password consists of 8 symbols, factory password is “▲▲▲▼▼▼▼▼ “, the user can change the password.

FACTORY MODE

Operation Sequence:
Click “MENU” to the first menu, select by ▲▼ key to “ Manufactory Mode”;
Then click “OK” to finish the setting.

Note: After this operation the System will return to the original Factory Setting.

KEYBOARD LOCK

Operation Sequence:
Click “MENU” to the first menu, select by ▲▼ key “ Keyboard Lock” then click “OK” key to finish the function. In order to use the front panel again you will need to open the Keyboard Lock.

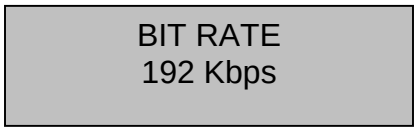
AUDIO MENU SETTINGS

The UC-250E+ Encoder supports the following audio parameters selections: audio input, audio PID, audio bit rate, sampling rate, audio mode and volume

BIT RATE

Operation Sequence:
Click “MENU” to the first menu, select by ▲ ▼ key “Set Program 1” or “Set Program 2”;
Then click “OK” key to the second menu, select by ▲▼ key “Audio 1” or “Audio 2”;
Then click “OK” to the third menu, select by▲▼ key “Bit Rate”;
Then click “OK” key to set the Audio Bit Rate.
Selection

X Kbps (X=32, 48, 64, 96, 112, 128, 160, 192, 224, 256, 320, 384)



Explanation: Select Bit Rate value by ▼▲ key.

AUDIO MODE

Operation Sequence:
Click “MENU” to the first menu, select by ▲▼ key “Program 1” or “Program 2”, click “OK” to the second menu;
Then select by▲▼ key “Audio 1” or “Audio 2”;
Click “OK” to the third menu;
Select by▲▼ key “Bit Rate”;

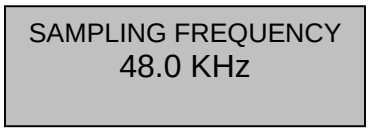
Click “OK” to “Audio Mode” setting.

Selection:
Stereo/Joint Stereo/Dual Channel/Single Channel

SAMPLING FREQUENCY

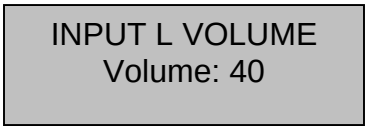
Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key “Analog Audio”;
Click “OK” to the second Menu;
Select by▲▼ Key “Sampling Frequency”;
Then click “OK” Key to set Sampling Frequency.

Selection:
32KHz/44.1 KHz/48 KHz



VOLUME

Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key: “Analog Audio”;
Then click “OK”;
Set volume by▲▼ Key



VIDEO MENU SETTINGS

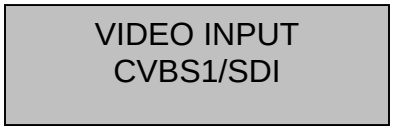
The UC-250E+ Encoder supports the following video parameters selections: video input, video PID, video bit rate , video signal, video resolution, GOP structure, spatial filter, graphic quality, and encoding mode.

VIDEO INPUT

The encoder supports two types of video inputs: CVBS1/SDI and CVBS2/Y/Pb/Pr

Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key “Program 1” or “Program 2”;
Click “OK” Key to the second Menu;
Select by▲▼ Key “Set Video”;
Click “OK” Key to the third Menu;
Select by▼▲ Key “Video Input”;
Then click “OK” to select video input

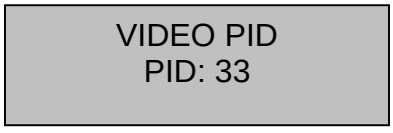
Possible Selections:
Program 1 Video Input: CVBS1/SDI
Program 2 Video Input: CVBS2/Y/Pb/Pr



VIDEO PID

Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key “Program1” or :Program2”;
Click “OK” Key to the second Menu;
Select by▲▼ Key “Set Video”;
Then click “OK” Key to the third Menu;
Select by▲▼ Key “Video PID”;
Then click “OK” to set PID.

The video PID Range is 0x20 to 0x1FFD



VIDEO BIT RATE

Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key “Program 1” or “Program 2”;
Click “OK” Key to the second Menu;
Select by▲▼ Key “Set Video”;
Then click “OK” Key to the third Menu;
Select by▲▼ Key “Video Bit Rate”;
Then click “OK” to set Bit Rate.
Range: 1-15Mbps

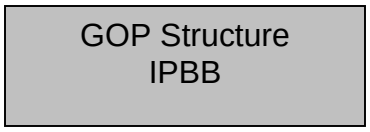
VIDEO SIGNAL

Video signal type can be selected to NTSC or PAL

GOP STRUCTURE

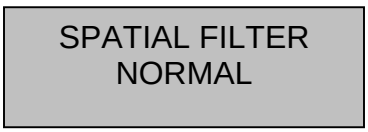
The GOP structure can be selected as I, IP, IPB, IPBB. The structure I requires the maximum bit rate and the IPBB requires the minimum.

Operation Sequence:
Click “MENU” to the first Menu, select by ▲▼ Key “Program 1” or “Program 2”;
Click “OK” Key to the second Menu;
Select by▲▼ Key “Set Video”
Then click “OK” Key to the third Menu;
Select by▲▼ Key “GOP Structure”;
Click “OK” Key to GOP Structure setting.



SPATIAL FILTER

Spatial Filter parameter including: Soft/Normal/Sharp/Soft show the picture soft, sharp show picture sharp.

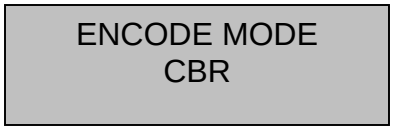


GRAPHIC QUALITY

Graphic Quality including: Brightness/Contrast/Chroma Hue/Saturation. Video Picture Quality has some change by adjustment these parameters.

ENCODE MODE

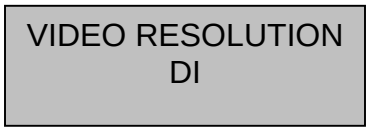
Possible Selections:
CBR/VBR



VIDEO RESOLUTION

Video Resolution display output picture quality, selected video resolution is connected to Bit Rate.
DI definition is the best. Q-SIF definition is the lowest resolution.

Possible Selections:
DI, Half-DI, SIF, Q-SIF



Note:

1- If modified video PID is same as other PID, the display will show “used”, at that time you can modify PID by ▲▼
2- If appear the same PID value through making over the PID, the system will give a clue to the user
3- During make over the PID, you should think over other equipment which connect the encoder
4- After making over the IP address you need return system to save the set and avoid set unsuccessful shut off the encoder

NETWORK MANAGEMENT OPERATION

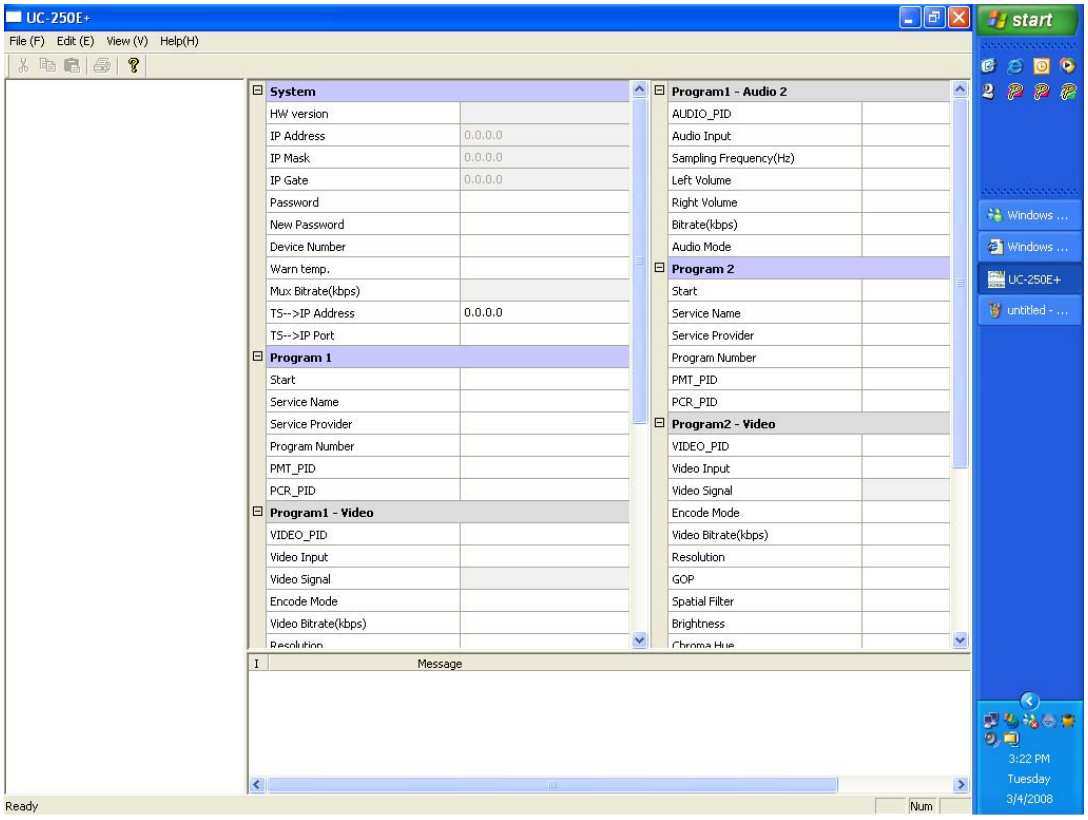
The Encoder can be managed by means of a Web-Based Remote Manager program.

OPERATION STEPS

INSTALATION

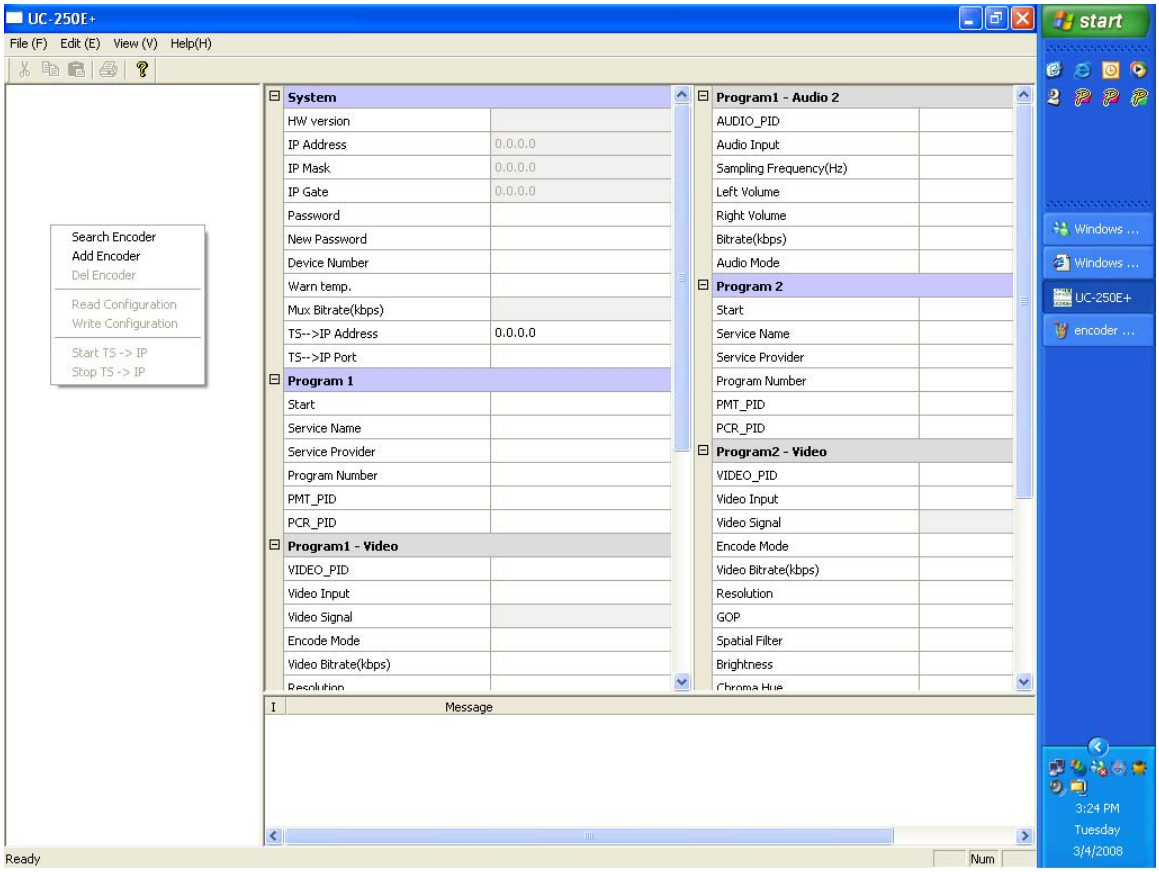
Insert the CD into the host computer and unzip the zipped file;
The unzipped file is setup exe.
Go on following the system prompt and then run encoder exe.

LOG ON

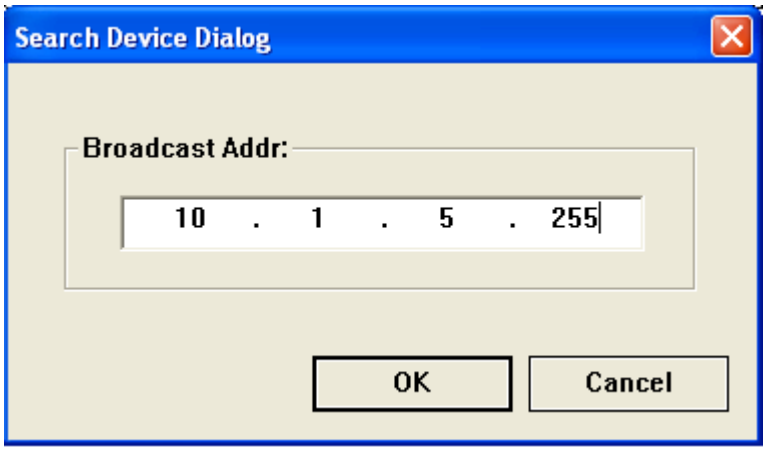


SEARCH ENCODER

As the fig. 4-2, right click mouse the left blank panel, the display is shown as following:



Search Encoder mode can search encoder by Search Mode or Add Mode in the network.
Click “Search Encoder”, the interface is shown as figure 4-3:



Fill in Broadcast Address in the fig 4-3, First three addresses are the same as network address, the last address will be “255”, it is shown as figure 4-3

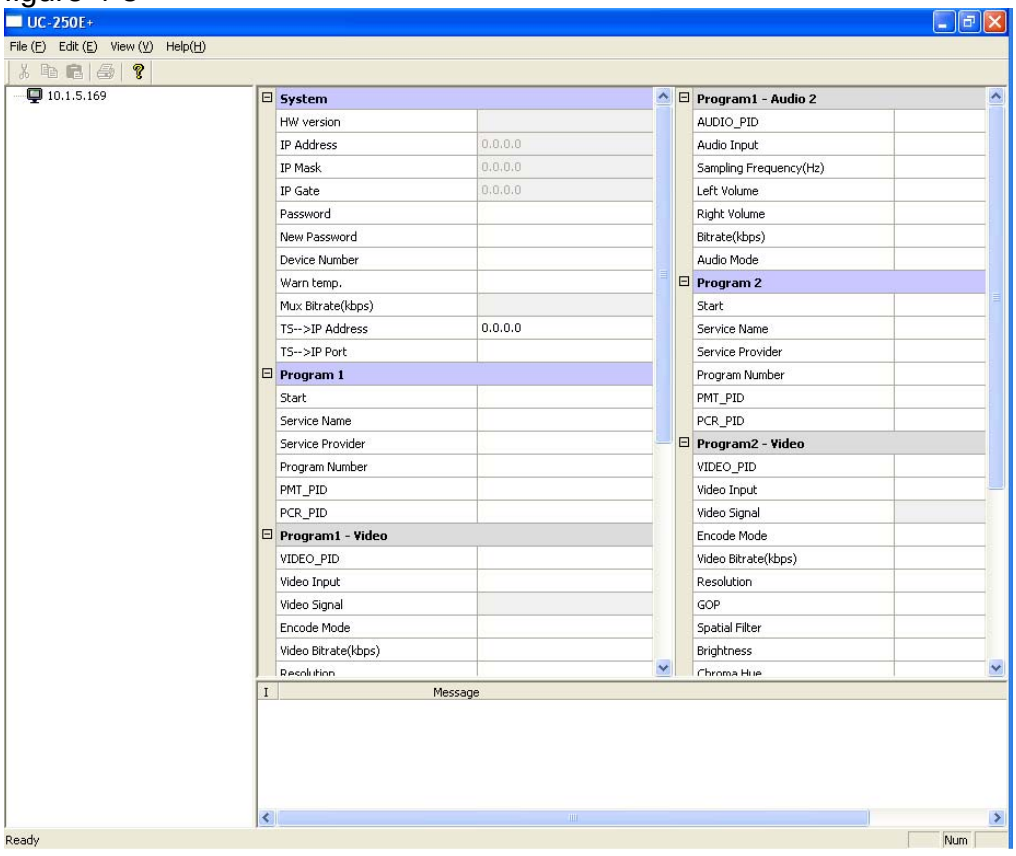
Enter the broadcast address for the specific LAN network in use in the format XXX.YYY.ZZZ.255.

If “add encoder” is selected the display will shown as figure 4-4

Fill in the specific IP Address, it can be seen by front panel;

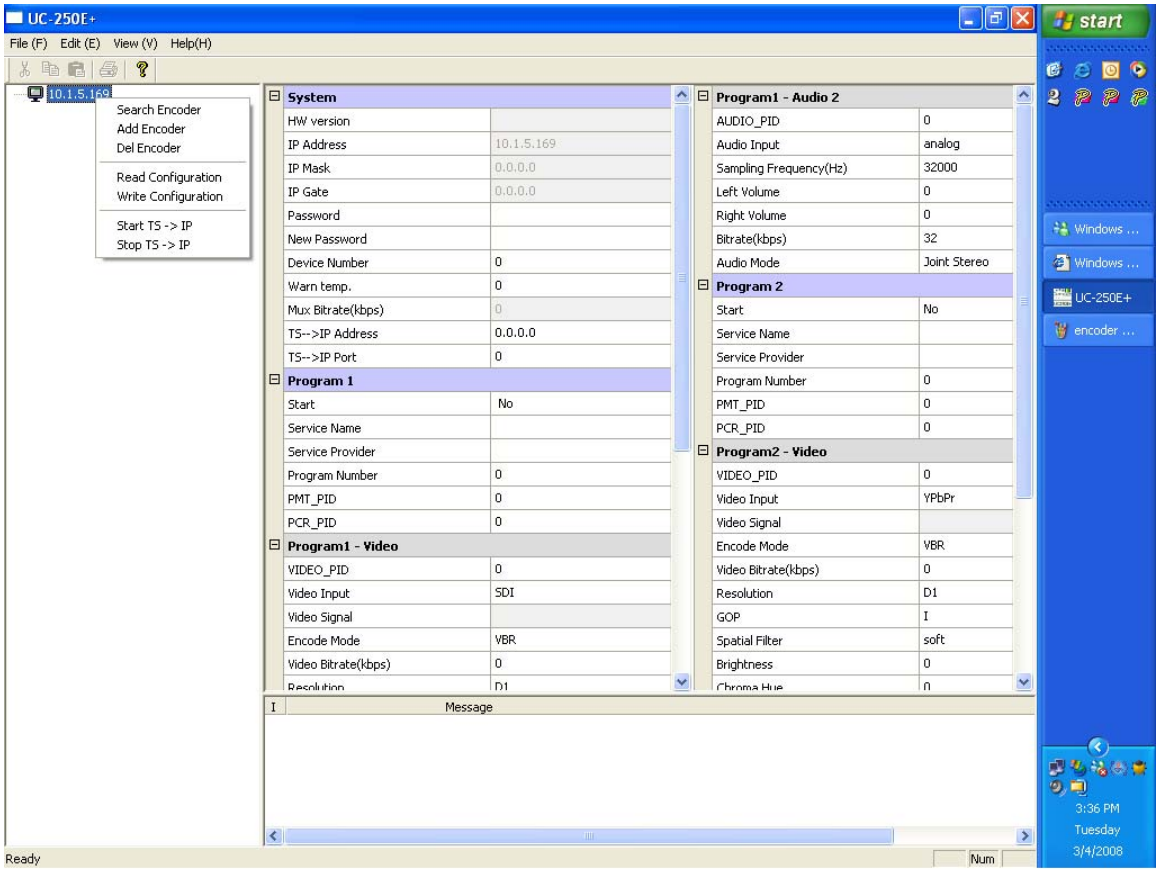
Operation Sequence"
Click "MENU" key to the first Menu;
Select by▲▼ key "System Option";
Click "OK" to the second Menu;
Select by▼▲ "Network Address";
Then click "OK","IP Address" will be shown.
Note: The IP Address is same as the Network Address

Fill in IP Address;
Click "OK", the Encoder in the Network will be shown in the left side, as following figure 4-5

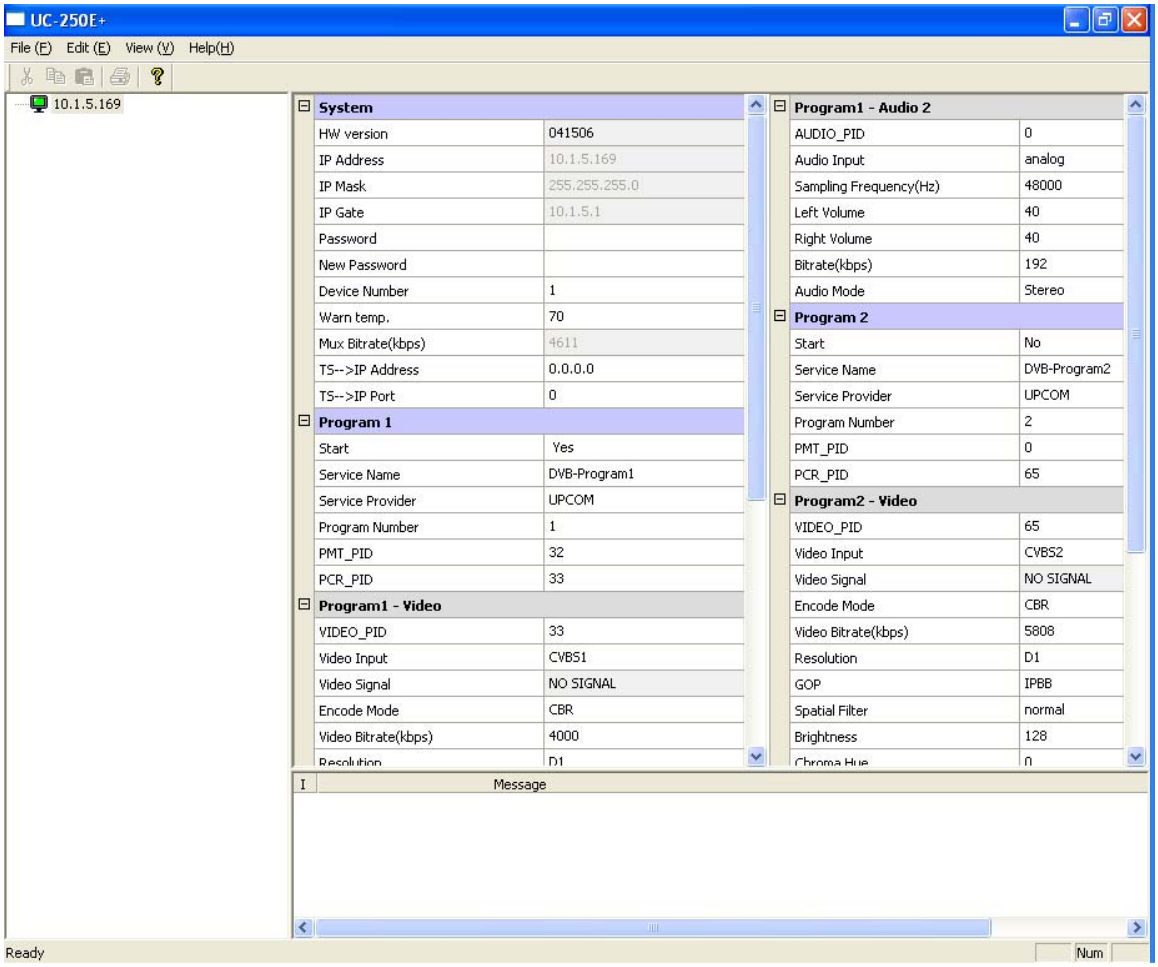


READ CONFIGURATION

After searching or adding Encoder, right click mouse in the IP Address, the display will show as figure 4-6:



As figure 4-6, click “Read Configuration”, the Encoder parameters will show at the display, at the same time the computer LED turn to green, as following figure 4-7:



After reading configuration, select a Encoder, then modify the parameters by remotely, after modification, fill in 654321 in password and new password column, then enter “Write Configuration” operation, so modify parameter procedure is finished.

WRITE CONFIGURATION

Write Configuration is the operation to save parameters. After adjustment of equipment parameters it is needed to click “Write Configuration” to ensure the parameter takes effect;
Operation steps are:
As figure 4-6, right click mouse in the left side;
Click “Write Configuration”;
The display will pop “set configuration success”, the parameter modify successfully.

SPECIFICATIONS

TECHNOLOGY PARAMETERS

Bit Rates: 2M-25M; VBR, O-CBR, I-CBR (ASI)
Output Ports: two ASI, RJ45
Human-Machine interface: LED LED, LCD Screen, Background adjustment button
Power-off protection: the device will restore the parameter in the case of power-off
Remote controlled by computer
Dimension: 484 (W) X 44 (H) X 306 (D) mm
Weight: about 5 Kg
Power consumption: 25W

REFERENCE STANDARDS

GB/T 17975
GY/T 170-2001

DEFINITIONS

DVB: Digital Video Broadcasting
TS: Transport Stream
SPTS: Single Program Transport Stream
MPTS: Multiple Program Transport Stream
ASI: Asynchronous Serial Interface
DCT: Discrete Cosine Transform
GOP: Group of Pictures
SPI: Synchronous Parallel Interface
VBR: Variable Bit Rate
CBR: Constant Bit Rate

APPENDIX A

ENCODER INITIAL PARAMETERS

		PARAMETER
System Option	IP Address	200.121.002.250
	Password modify	▲▲▲ ▼▼▼▼▼
	Device	1
	Warm temp.	70
Set Program 1	Output	On
	Program number	1
	Set Video	CVBS
	Set Audio 1	Analog 1
	Set Audio 2	Audio PID=0
	PMT PID	32
	PCR PID	33
	Service Name	DVB-Program1
	Service Provider	DVB-Server
Set Program 2	Output	Off
	Program Number	1
	Set Video	CVBS
	Set Audio	Audio PID=66
	PMT PID	0
	PCR PID	65
	Service Name	DVB-Program2
	Service Provider	DVB-Server
Set Analog Audio	Sampling Frequency	48Mhz
	Input1 L Volume	40
	Input1 R Volume	40
	Input2 L Volume	40
	Input1 R Volume	40