



HDMI Encoder 8x

USER MANUAL

Vingtor-Stentofon IPTV System

TECHNICAL MANUAL

when communication is critical

DOC.NO.A100K11593



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1. Basic Information

1.1 Revision history

Document no.	A100K11593
Last revised by:	Boris Cezner
Revision:	02
Date:	09.11.2016

1.2 Related documentation

For further information, refer to the following documentation

Doc.no.	Documentation
A100K11581	IPTV Administrator Guide
A100K11594	MPEG-2 Encoder 8X User Manual

The WEEE Directive does not legislate that Zenitel, as a 'producer', shall collect 'end of life'. The owner who should use proper treatment and recycling measures should recycle this 'end of life' WEEE appropriately. It should not be disposed to landfill.

Many electrical items that we throw away can be repaired or recycled. Recycling items helps to save our natural finite resources and also reduces the environmental and health risks associated with sending electrical goods to landfill.



Under the WEEE Regulations, all new electrical goods should now be marked with the crossedout wheeled bin symbol shown below:

Goods are marked with this symbol to show that they were produced after 13th August 2005, and should be disposed of separately from normal household waste so that they can be recycled.



2. Product Introduction

2.1 Outline

The HDMI Encoder 8X is our professional HD audio & video encoding and multiplexing device with powerful functionality. It is equipped with 8 HDMI inputs supporting MPEG-4 AVC/H.264 High Profile code format & main Profile code format and 1 ASI input. It can multiplex the ASI input TS and the 8 encoded SPTS to generate an MPTS output with the inserted PSI/SI information. In conclusion, its high integrity and cost-effective design make this device widely used in variety of digital distribution systems such as CATV digital head-end, satellite and terrestrial digital TV, etc.

2.2 Main Features

- 8 HDMI & 1 ASI inputs
- 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 operating, and network management (SNMP)

2.3 Specifications

8 HDMI input		MI inputs			
Input	1 ASI	[input, BNC int	erface		
	Resolution		1920×108	0_60P,1920×1080_50P	
			1920×1080_60i, 1920×1080_50i		
			1280×720_60P, 1280×720_50P		
			720x576_50i, 720x480_59.95i		
Video		Encoding	MPEG-4 A	AVC/H.264 high profile level 4.0	
video		Bit-rate	0.8Mbps~	19Mbps (each channel)	
	R	ate Control	CBR/VBR	1	
	G	OP Structure	IBBP		
		Advanced	De interle	ing Naine Deduction Shamoning	
	P	retreatment	De-interna	cing, Noise Reduction, Sharpening	
		Encoding	MPEG-1 I	Layer II, HE-AAC (V2), LC-AAC	
Andio	Sa	Sampling rate 48KH		8KHz	
Auulo	I	Resolution	24 bit		
		Bit-rate	64Kbps~384Kbps each channel		
Multiplexin	g		1 ASI input multiplexed with local 8 channels of TS		
			2*ASI output, BNC interface		
Stream outp	out		MPTS and 8 SPTS over UDP, 1000 Base-T Ethernet		
			interface (UDP unicast / multicast)		
			LCD/keyboard operating, NMS supporting		
System fund	ction		Chinese-English control interface		
			Ethernet software & hardware upgrade		
		Dimension (V	V× L× H)	440mm×410mm×44.5mm	
		Approx v	veight	4kg	
Miscellaneo	us	Tempera	ature	0~45℃(work), -20~80℃ (Storage)	
	Powe		er	AC 100V-220V±10%, 50/60Hz	
Consum		ption	25W		

2.4 Principle Chart



2.5 Appearance and Illustration



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

	LCD screen	
		Power indicator
	Indicators	TS in: input lock indicator
	mulcators	CH1-CH8: When 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:





1	8 * HDMI input ports
2	ASI Input Port
3	2* ASI Output Port
4	Data port (for IP signal output)
5	NMS (Network management port)
6	Power Switch and socket
7	Grounding Pole



3. Installation Guide

3.1 Acquisition Check

When opening the package, it is necessary to check the items according to the packing list. Normally it should contain the following items:

- HDMI Encoder 8x
- User's Manual
- HDMI Cable
- ASI Cable
- Power Cord

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

3.2 Installation Preparation

When installing the device, please follow the steps below. The details of the installation process will be described later in this chapter. One can also use the rear panel chart during the installation.

This chapter describes:

- Checking the possible device loss or damage during the transportation
- Preparing relevant environment for installation
- Installing the HDMI Encoder 8x
- Connecting signal cables
- Connecting communication port (if it is necessary)

3.2.1 Device's Installation Flow Chart :



3.2.2 Environment Requirements

Machine Hall Space

• When installing a 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.

Machine Hall Floor

Electric Isolation, Dust Free, Volume resistivity of ground anti-static material: 1X10⁷~1X10¹⁰ Ω, 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 Humidity**
- 20%~80% sustainable, 10%~90% short time

Pressure

• 86~105KPa



Doors & Windows

Install rubber strip for sealing door-gaps and dual level glasses for window

Walls

• May be covered with wallpaper, or dark 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.

3.2.3 Grounding Requirement

All function modules' good grounding designs are the basis of reliability and stability of electronic devices. It is the most important guarantee of surge protection and interference rejection. Therefore, the system must be grounded. 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. Make sure the 2 ends of grounding wire conduct electricity and are not rusty. It is prohibited to use any other devices as a part of grounding electric circuit. The area of the conduction between grounding wire and device's frame should be no less than 25mm².

3.2.4 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and should avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm².

3.2.5 Device Grounding

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

3.3 Wire's Connection

The grounding wire conductive screw is located at the right of the rear panel, and the power switch, fuse, power supply socket are 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 the Power Cord:

Connect one end to the power supply socket, and the other end to the 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 .

Before connecting power cord to the HDMI Encoder 8x, set the power switch to "OFF" position.



3.4 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:

• HDMI input cable illustration:



• ASI output cable illustration:



LAN Patch Cable illustration:



3.4.1 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 an HDMI cable connected to it, illustrated as follows:





3.4.2 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). Connect one end to the encoder's ASI out connector (ASI1, ASI2) and the other end to the TS stream multiplexer or modulator's ASI input port. The encoder's ASI output interface and a cable, connected to it, illustrated as follows:



3.4.3 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 (patch) cable. Connect one end of the network cable to the encoder's DATA output connector, and the other end to the TS stream multiplexer IP input port or other device which can input IP signal. The encoder's DATA interface connection is illustrated as follows:



3.4.4 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 (patch) cable. Connect one end of the network cable to the encoder's NMS connecter, and the other end to your PC. The encoder's NMS connection is illustrated as follows:

4. Operation

HDMI Encoder 8x's front panel has the user interface. Before operating, user can decide whether directly use the default setting or customize the input and output parameters setting. Here is a detailed description of these operations:

Keyboard Functions Description:

- ENTER: Activates the parameters that need to be modified, or confirms the changes after modification.
- **MENU:** Cancels unsaved changes to currently selected value, resets to previous settings and returns to previous menu.
- LEFT/RIGHT: Moves the "▶" to choose or set the parameters.
- **UP/DOWN:** Modify activated parameter or page up/down when a parameter is not activated.
- LOCK: Locks the screen / cancels the locked state. After pressing lock key, the system will ask if you want to save the current changes. If not, the LCD will display the current configuration state.

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

4.1 Initializing

After powering on the device, it will take a few seconds to initialize the system, and then the LCD will show the device's 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. It shows as below:

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

4.2 General Setting

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



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



4.2.1 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 from Encoding Channel 1 to Encoding Channel 8. The setting principle is the same for Encoding Channel 1-8, so here this manual takes one channel as an example. 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

Once you enter a submenu, the screen will show the following pages, and then one can enter the corresponding interface to modify its parameters.

►111 Video	112 Audio
1.1.3 System	1.1.4 PG Muxer

4.2.1.1 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 to modify relevant parameter of encoding rate (adjustable range: 0.8M~19M), the specific steps are displayed as follows:



Bitrate Mode

Choose CBR & VBR in 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 change along with the video scene changing.

1.1.1.2 BitrateMod [CBR]	VBR	01/01	



• Profile

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



Level

Select the H.264 level at this menu. The option in brackets is the current choice.



4.2.1.2 Audio Setting



Audio Bit Rate Setting

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

1.1.2.1 Bit-r	ate		01/03	
64 Kbps	96Kbps	112Kbps	[128Kbps]	
1.1.2.1 Bit-ra	ate		02/03	
1.1.2.1 Bit-ra 160 Kbps	ate 192Kbps	224Kbps	02/03 [256Kbps]	



ſ			
	1.1.2.1 Bit-rat	te	03/03
	320 Kbps	384Kbps	
L			

Audio Format Setting

VINGTOR 🔷 STENTOFON

V ZENITEL GROUP

AAC: Advanced Audio Coding

Set the input audio format on this screen, and the 3 options are MPEG1 Layer II, LC-AAC, and HE-AAC. When you enter the main editing menu, the LCD will display the following page:



4.2.1.3 System Settings



On this screen, one can set the corresponding system parameters, after setting those parameters, press Enter to apply the changes.

• Program Number Setting

Set the program number by pressing Enter to enter this submenu. The LCD will display the following:

• 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.





• IP Enable



Out Address/Out Port Setting

Modify the out address and out port:



Null Packet

Choose YES (filter the null packet) or NO (don't filter the null packet).

1.1.3.9 Null Packet 01/01 YES [NO]

4.2.1.4 Program Mux Setting

Decide whether to open the multiplexing function of the device.

Channel Mux

Under this interface, you can 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.

(
1.1.4.1 Channel Mux	01/01	
[YES]	NO	
l		

4.2.2 ASI Setting

Check the number of ASI input programs on this screen, the LCD will display the following page. Prog: 006 means that the number of input programs is 6 and Out:003 means that 3 of those 6 programs are multiplexed.



4.2.3 Output Setting

Press Enter in the main editing screen, to set the device output parameters. The LCD will display the following page:





4.2.3.1 IP Out Enable

This is a new function of this encoder, user can decide whether to open the IP output function by pressing Enter in this menu, and the LCD will show the following page:

4.2.3.2 IP Out Address

If you enable the IP output function, then you can setup the device's IP address in the following screen. After you press the Enter, the LCD will display the following page:

4.2.3.3 IP Out Port

In this menu set the encoder IP output port number by pressing the Enter to enter the main editing screen:

► 3.3 IP Out Port <u>0</u>1001

4.2.3.4 Trans Stream ID

Set the device TS ID in this screen after pressing the Enter to enter the main editing page.



4.2.3.5 Output Stream

You can modify the bit rate of the output stream in this screen after pressing Enter to enter the main editing page:

3.5 Output Stream <u>0</u>40.000 Mbps



4.2.3.6 ASI Output

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



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 it in the user's STB.



4.2.3.7 TS Package Num

One can set the amount of TS packages by entering the screen below:

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

4.2.4 Network Setting

Set the network parameters by pressing Enter, the LCD will display the following screens:

4.1 IP Address 192.168.005.018

4. 2 Subnet Mask 255.255.255.000

IPTV System



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 one can only check the physical address under this interface, and the modification must be done with the network updating tools.



NOTE: The MAC address is unique, and cannot be modified. When the MAC address is fffffffffff, users must modify the address through special software, otherwise, the IP output data will be filtered out when the IP stream passes through a router.

4.2.5 Saving Configuration

To save the modifications, press Enter, and the LCD will show the following screen:



4.2.6 Loading Configuration

In this screen, one can select the modified configuration and the factory default configuration. One can enter the corresponding menu to select the configuration. The LCD will show the following screen:



4.2.7 Version

Check the device software version and hardware version, and the LCD will show the following screen when you press Enter:





4.2.8 Language

Select the language in this submenu:

8 Language 中文

[ENGLISH]



5. NMS (Network Management System) Operation

Network management system is applied to digital TV equipment operation, control, management, parameters setting, etc. It allows centralized control of the digital TV equipment over the network.

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 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.

The software doesn't need special installation. User can just open the folder SnmpNMS x.xy.z, find the icon



and double click it to pop up the login interface.

5.1 Software Operation

5.1.1 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. The menu shows as follows:

📣 Login	
VserName	admin 💌
PassWord	F Auto Login
√ ок	O Cancel

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.



5.1.2 Main Interface

File	<u>E</u> dit	Operate	Setting	Help								
6	Remote Los	ad 🔛 Remote S	Save 📴 Facti		🕵 Restart	🚮 Local Save	🛐 Local Load	C Undo	Redo			
				1.				<u> </u>	<u> </u>			
				- Freq	Point							1
						1	1					
	I Name	iiii Info	0	Equ	ipment Name	🛒 IP Address	Equipr	nent Type	ErrorInformations	0	SystemTime	
	Equipment Ty IP Address	pe										
	Version											
	HardWare Ve	rsion										
	SoftWare Ver	sion										
1			>	1								
							-					
User	Name: admin	u Vse	er's Authori	ty: Admin	Auto Re	egister: no	0					

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.

5.1.3 Adding Frequency Point

le <u>E</u> dit <u>O</u> perate	Setting	Help						
Ber 🚉 AddFreqPoint	Ctrl+E	ry Setting 🛛 🕺 Restart	🚮 Local Save	🗐 Local Load	🕞 Undo 🕤 Redi			
22 Add Equipment	Ctrl+D	Freq Point						
🎉 Edit Equipment	Ctrl+F							1
💢 Delete Equipment	Ctrl+G							
🖀 Delete All	Ctrl+H							
				1		1.000		
Name Info		Equipment Name	IP Address	Equipm	ent Type 🔛 Error	Informations 🛛 🕚	SystemTime	
Equipment Type								
TVersion								
HardWare Version								
SoftWare Version								
	>							
Name: admin User	s Authori	ty: Admin Auto Re	egister: no	0				

The AddFreqPoint dialog box popes up when the user clicks the AddFreqPoint item in the Edit pull down menu on the menu row. The device will confirm the given frequency while user clicks **OK**.



regPoint	
FreqPointName	
test	

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 MainFreqPoint.** The device will confirm the given frequency while user clicks **OK**.

File	Edit	Operate	Setting	Help			
∋ Rei	note Load 🔛	Remote Save	Factory Setting	👫 Restart	🕤 Local Save	Decal Load	Exi
				<			
	Add Free	Point					
	a Add Equi	pment					
	👸 Edit Pro	operty					
	🗙 Delete						
	🖥 Delete /	11					
	S: Order By	y Name					
1.5	-						

5.1.4 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.





5.1.5 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.

The default IP of HDMI Encoder is 10.1.20.7, also you can check its IP address in the front panel of device in case the IP changed unexpected.

The PC IP address and device IP address should be in the same network. For example the Device IP is 10.1.20.7 with sub mask 255.255.255.0. So the PC IP address should be 10.1.20.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:

SnmpNMS								
ile Edit	Operate	Setting	Help					
> Remote Load	Remote Save	Factory Setting	🕅 Restart 🧯	Local Save	🗐 Local Load	📔 Exit		
E ≪ (MB) - ④ NOS32184	Α	<	Freq Point					
■ Name ■Equipment Type	Freq Point		Equipment Name DS3218A	IP 4 192.168.5	vddress IL	Equipment Type 3218A 8in1 MPEG-4 AVC	Error Informations	CD System Time 2013-02-07 08:46:33
IP Address								

5.1.6 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.

E 🗲 te	st			-
		Add Main Fre AddFreqPoint Add Equipmen Modify Prope Delete	q Point t rty	Pa

5.1.7 Save Configuration

After finishing all the parameters setting, user can click **"Remote Save**" 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 **"Remote Load**"

Alternatively, user can also click the **"Local Save**" 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.

SaveFile					
		•	+ E	• 🎟 🍅	
back	2£8c69172c8d89b4a1c2c				
< 10				0	>
File <u>n</u> ame:			•	<u>O</u> pen	
Files of type:	bin		<u> </u>	Cancel	

Similarly, user can choose to click the **"Local Load"** 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.

Look jn		0 :)	*	+ 🗈 💣 🗊	•
Ay Recent Jocuments Desktop	7 Trash-roo 2005 - 4 - 2005 - 6-2 2005 - 6-2	t 19– 1102_flash test			
y Documents					
Documents					
y Documents	File name:	I		¥	<u>O</u> pen



5.2 HDMI Encoder 8x Operation

User can choose the 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.

5.2.1 Parameters Setting

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

ol SumpNMS	
File Edit Operate Setting Help	
🗁 Remote Load 🔒 Remote Save 📴 Factory Setting 💸 Restart 🗿 Local Save 🐒 Local Load 🖡 Exit	
🛞 NDS32184	
T General	
• 5 Weeks • 5 Granner	
IP Output Enable 🔽 224 . 2 . 2 . 2	Dutput Port 2201
Service IP Address 192.168.3.137	Original Network ID(0x)
Service Mask 255 . 255 . 255 . 0	Transport Stream ID(0x)
Service Gateway 192.168.3.1	Output bitirate(Mbps)
ASI Output Channel Channel08	UDP Stream TS Package 7
NIT Insertion 🔽 SDT Insertion 🔽	MPTS Filter Null Pkt
Users can	B PSI/SI
ab a share is a	
Check version	
🔲 Name Information 🔲 Equipment Name 🛛 🛒 IP Address 🛛 🔛 Equipment Typ	e Error Informations 🚯 System Time
Equipment Type NDS3218A 8in1 M KNDS3218A 192.168.5.18 NDS3218A 8in1 MPE	EG-4 AVC Online 2013-02-07 08:46:33
P Address 192.168.5.18	
HardWare Version 0.8	
SoftWare Version 0.17	
LisetName: admin Auto Lonin/Yes 🔊 Succes	* 8 46:55

5.2.2 General Parameters

Set: to make the current parameters shown in the SNMP software activate.

Get: to read the current device's activating parameters and show them on SNMP software.

• IP Out Enable

Check the checkbox with " $\sqrt{}$ ", 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/Service IP Address/Service Mask/Service Gateway

Users can set the address by modifying the value in these four fields.

ASI Output Channel

ASI Output Channel	Channel06	-
	MPTS Channel01	^
Device Mode	Channel02	
NIT Insertion	Channel03 Channel04 Channel05	
MPTS Filter Null Pkt	Channel06 Channel07	Y

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

Output Port

To set the output port by modifying the value in this field.

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 Bit Rate (Mbps)

This 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.

• UDP Stream TS Package

Users can set the amount of TS packages in this field.

NIT Insertion

In this field, users can decide whether to effect the NIT (Network Information Table) insertion function.

SDT Insertion

In this field, users can decide whether to effect the SDT 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.



5.2.2.1 Video Parameters (Parameters->Channel->CH0X)

	Input channel selection area. The interface and setting principle of each channel are the same.
NDS3218A 8in1 MPEG-4 AVC/H.264 HD Encoder Parameters Multiplex Im T ables Multiplex General Chonnel CHo1 CHo2 CHo3 CHo4 CHo5 CHo6 CHo7 Video	-> CH08
Bitrate Mode CBR Resolution 720x480 59.941 H264 Profile High H264 Level 4.0 Audio Encoder Type MPEG1-Layer2 Bitrate 128Kbps System System	Bitr Video Config Area: It is to configure video manually except resolution which
Audio Config Area: It is to configure audio manually.	

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.



5.2.2.2 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

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 *k*. 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:

ø	Program Info				
		_			-
	Description	Туре	Value(0x)		
	Program Number		101		
	Program Name		DTV1		
	PMT PID		100		
	PCR PID		101		
	MPEG2 Video	2	101		
	MPEG2 Audio	4	102		
					_
					1
				A	
	Type: Val	ue(0x) :		🖷 Set	
		S		(Const.)	
		Modil 🔊	У	Cancel	



Select the target item and input the new value in the box below, then click **"Set"** and **"Modify"** to effect the modification.

Timeout 60 sec : The parsing overtime value

5.2.3 Tables



Pid Filter Table	
	Confirm

Users can operate PID filter in this table by checking the check boxes of corresponding items and click "**Confirm**" **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.



5.2.3.2 PID Pass

101 033					
🗐 Parameters 🛉	Multip	lex 🛄 Tables	🔯 Realtime Mor	nitor	
📬 Pid Filter Table	📬 P	id Pass 📬 NIT	Parameters		
	Index	Input Channel	Input PID(0x)	Output PID(0x)	
					🐜 Get
					⇒5 Add
					• • • • •
					🕅 Modify
					The Delete

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.

ø	Transmit			×
	Index	2		
	Input Channel	9		
	Input Pid	1	0x00000x1FFF	
	Output Pid	1	0x00000x1FFF	
	RowStatus	CreateAnc 💌		
	🗸 ок		Cancel	

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.

Index	Input Channel	Input PID(0x)	Output PID(0x)
1	9	101	101

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



5.2.3.3 NIT Parameters

NIT (Network Information Table) is a very important table for describing the network and TS. Users can set the parameters of the output NIT table.

Netw	vork ID	0	Network Name			
	ert Private Des riptor Tag(0x)	scription	Descriptor Data	(0x)		
QAM		1		(***) J		
Index	TS ID(0x)	Original Network ID(0x)	Frequency(MHz)	Symbol Rate	Modulation	📬 Ade
						🔊 моа
						👘 Dele
, DPSK						🛛 🐴 Ge
Index	TS ID(0x)	Original Network ID(0x)	Frequency(GHz)	Symbol Rate	Polarization	🕒 🕞 Se
						🛟 Ad
						濥 Mod
						裔 Dele

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

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

5.2.3.4 Insertion of private description

Insert Private Description		200-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	
Descriptor Tag(0x)	Descriptor Data(0x)		

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(0x) : The Descriptor Tag is an 8-bit field which identifies each descriptor.

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

i 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 applied for the DVB-C network.

🕫 NIT		
Index :	1	
TS ID (0x):	1	
Original Network ID (0x)	1	
Frequency :	100	MHz
Symbol Rate :	6.785	MBound
Modulation :	16QAM 💌	
Row Status :	CreateAndGo 💌	
🗸 ОК	O Cancel	

The interface will show as below after the NIT parameters being added:

Г	QAM						
	Index	TS ID(0x)	Original Network ID(0x)	Frequency(MHz)	Symbol Rate	Modulation	
	1	1	1	100	6.785	16QAM	

👸 Modify

E Set

The "Modify" button will trigger 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.

5.2.4 Real-time Monitor

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

Current	Program Co	ount: 8	Cur	rent B	itrate	<mark>: 66.0</mark>	<mark>13Mb</mark> j	ps	Ma	ox Bitra	ate : 6	6.13M	<mark>lbps</mark>	_
Mbps				Rea	ltime	e Mor	nitor							
200			 						 					
180			 						 					
160			 						 					
140			 						 					
120			 						 					
100			 						 					
80			 		·				 					
60			 						 					
40			 						 			·		
20			 						 					
0			 						 					



5.3 Other Settings

5.3.1 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. That is the difference between "**Set**" and "**Remote Save**".

5.3.2 IP Modification

File	Edit	Operate	Setting	Help	
Remote Load		C Refresh	Refresh Equipment		Restart
		Factory Setting Stop Operate Modif Ip		Ctrl+1	3301 QAM Mode
				Culty	

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.

🥵 Sna	PNES			
File	Edit	Operate	Setting	Help
🗁 Remo	ote Load 💂	Remote Save	Factory Settin	9 🖏
	test			K N
-	O NDS32	18A 8 in 1 encod	d FreePoint	TD P
		2 2 A	dd Equipment	-
		1	dit Property	
		×D	elete	=
		御 D	elete All	
		籠 0:	rder By Name	_
		¦8 ∷ 0:	rder By Name	1

Input the new IP Address in the box and click OK button, then the device will be connected again.

Add Equip	ment 🛛
IP Address	192.168.5.18
Port	2007
Equipment Name	NDS3218A
Equipment Type	NDS3218A 8in1 MPEG-4 AVC/H.264 HD Encoder
	✓ OK Ocancel

After finishing all the parameters setting, user should click **"Remote Save**" button on the toolbar to save the modifications to the device's flash.

5.3.3 Creating User

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

💋 Snn	😥 SnapHES						
File	Edit	Operate	Setting	Help			

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 " $\sqrt{}$ ", user can input the new username and new password as prompts below. It is required to click "**Add**" to add the new user and then click "**OK**" to save the new setting.

User Setting	
UserName	admin
PassWord	
Г	Auto Login
Edit Information Choose User	admin
PassWord	
New UserName	admin2
New PassWord	NENEN
Confirm PassWord	жжжя
	Edit Delete
🖌 ОК	O Cancel



6. WEB NMS (Network Management System) Operation

On newer models we can also use web browser for configuration

6.1 Login

The default IP address of this device is 10.1.20.7. (This can be modified through the front panel.) Connect the PC (Personal Computer) and the device with lan cable and configure network card on PC to be in the same network segment. Use web browser to connect to the encoder using encoders IP address in the browser's address bar and press Enter. It will display the Login interface. Input the Username and Password (default User name is "Admin" and Password is "Zenitel!".) and then click "LOGIN" to start the device setting.

OGIN			
Jser Name:	8	ıdmin	



6.2 Operation

6.2.1 Encode Setting

From the menu on top of the webpage, clicking "Encode Setting", it displays the information of the program from the 1st HDMI encoding channel.

ſ	Encode Setting	92.168.2.136 Parameter - Sy:	stem -	SaveLoad Password	∀ C	interface each chan	and setti nel are th	ing principle of e same.
	Output Setting			Network		1		
	4	CHANNEL 1 HANNEL	2 CHANNE	EL 3 CHANNEL 4 (CHANNEL 5 CH	IANNEL 6 C	HANNEL 7	CHANNEL 8
	1-	Video Bitrate (Mbps)	8.00		Ritrate A	lode	CDD	
	/!	Profile	HIGHT		Level	noue	4.0	
	/ -							
6444 - PSTRY 11-8	-1 -	Audio Audio Bitrate	128 Kbps		Format		MPEG-1 L	aver II
ideo Conf	ĩg 🖕 -							
rea:		Encoder						
is to configu	re	Program Num	1		Video P	D	0x21	Audio Cont
deo manually	y	Audio PID	0x22		PMT PIE	0	0x20	Area.
2007 00 10-02000 02000 - 2007 0-		PCR PID	0x21		Format		Unknow	It is to configu
		Channel Output						
		IP Out Enable	YES		Original	Network ID	1	audio manually
		IP Out Addr	224.002.0	02.002	Trans S	tream ID	1	(
		IP Out Port	1002		Filter Nu	III Pkt	NO	
		Out Protocol	UDP					
				Apply	Get Conf	ig		



6.3 TS Mux

From the menu on top of the webpage, clicking "TS MUX" will display screen as below:

HD Encoder + 192.168.2.136 Parameter - System -	⊽ C] <mark>8</mark> •	Google 🦻 🛧 🗎 ♣	- C E
TS MUX →Locked → Overflow	CH01-CH08: The 8 HDMI Encoding Channels	⇒Lose ⇒ Locked ⇒ Overflow	Reboot: It will
Input Program Channel	✓ PID Remap < Refresh Refresh > >>> < <<< Edit Prg	CuseCorrectCorrectCorrect \bigcirc CH 1 ENCODER 0 \bigcirc CH 2 ENCODER 0 \bigcirc CH 3 ENCODER 0 \bigcirc CH 4 ENCODER 0 \bigcirc CH 5 ENCODER 0 \bigcirc CH 6 ENCODER 0 \bigcirc CH 7 ENCODER 0 \bigcirc CH 8 ENCODER 0 \bigcirc CH 9 ASI 0	restart the device automatically.
CH09: The 1 ASI Input Channel Input Area Pa	rse PID Pass	Output Area	

PID Remap : Check this box to set the PID Mapping



: To refresh the inputting terminal and get the inputting information

: 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 set the program to the relevant output channel.

: Cancel the multiplexed programs.

: 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:

PROGRAM	EDIT		
General			
Program Number	16	Program Name	DTV1
PMT PID	0x20	PCR PID	0x21
Program	Info		
H.264 Video:	0x21	13818-3 Audio:	0x22
	Apply	Clos	e

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. To do that we need to use PID Pass function.

_	_	_	
		0.4	
		_	

E User can decide to bypass the inputting PID as needed. Click this button to pop up a dialog box

PID PASS			
PID Pass	Channnel	Input PID	Output PID
NEXT 9	0x	1	0x1
	Apply	Close	
•	m		•

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.



NIT EDIT	
NIT Parameters Network	Network
Instert Private N0	Name
Descriptor _{0x0}	Descriptor
QAM	
Index TS ID Original Freq(MHz)	Rate Modulation
NEXT 0x1 0x1 100 6.875	16 QAI
QPSK	
Index TS ID Original Freq(GHz)	Symbol Rate Polarization
NEXT 0x1 0x1 100 6.875	Linea: 💌 Add
Apply	Close

Network ID

: The parameter describes the output TS's network ID

Network

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

6.3.1 Insertion private description

Instert

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.

6.3.2 Output Setting

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

🜏 192.168.2.136		⊽ C S - Google	▶ ☆ 自	. ♦	=	
Parameter - Syste	m +			R	eboot	
Config IP Out Enable IP Out Port Original Network ID Trans Stream ID Output Bitrate (Mbps) MPTS Filter Null Pkt NIT Instertion IP Out Protocol	YES ▼ 1001 0 0 80.00 N0 ¥ES UDP ¥DP RTP App	IP Out Addr Service IP Addr Service Mask Service Gateway ASI Output TS Pkt Num (1~7) SDT Instertion	224.002.002.002 192.168.003.137 255.255.255.000 192.168.003.001 MPTS 7 YES			MPTS Chan Chan Chan Chan Chan Chan Chan Chan

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

6.3.3 Save Load

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



Eave	
When you change	the parameter you shoud save configuration otherwise the new configuration will lost after reboot.
,	
Load	
Load latest saved parameter will lost	configuration,after click the "Load" then please click the "Save" button,otherwise the "Restore" after reboot
F	
Factory	

6.3.4 Password

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

SSWORD			
Intro Modify the login name ar keyboard. The default log	d password to make the gin name and password is	device safely.If forget the name or password,you can reset s "admin".Also please note the capital character and lowerd	it by ase character.
Setting Current User Name	admin	Current Password New Password	

6.3.5 Network

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



		⊽ Ĉ 🛛 🗧 Google	
Parameter +	System -		
FTWORK			
ID Addrocc			
The manage address	ess,use this address to visit the manages use the new address to visit the ma	ge web.The format is xxx.xxx.xxx.xxx(nage web.	like 192.168.0.1). After set th
Subnet Mask			
General is 255.25	5.255.0,it is must the same in a local a	rea network.	
Gateway			
If the device is in d	imerent net segment,you must set the	galeway.	
Web Manage Po	ort		
The default web m port(liks as http://1	anage port is 80,if you change it(like 8 92.168.0.1:8001).This function will wo	8001),you can visit the manage web rk after device reboot.	only use IP address and
Setting			
IP Address	192.168.002.136	Subnet Mask	255. 255. 255. 000
Gateway	192.168.002.001	Web Manage Port	80
outonay			



7. Troubleshooting

Precautions:

- Install the device at a place with average temperature between 0 to 45 °C
- Provide good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Check that the input AC is in the power supply's working range and that the commutation is correct before switching the device on
- Check if the RF output level varies within tolerant range if it is necessary
- Check that all the signal cables are connected properly
- Frequent switch on/off of the device is prohibited; the interval between switching the device on/off must be greater than 10 seconds.

Unplug the power cord to shut down the device when:

- The power cord or socket is damaged
- Any liquid flowed into the device
- Any stuff causes short circuit
- Device is in damp environment
- Device suffered from physical damage
- Longtime idle
- After switching on and restoring to factory setting, device still cannot work properly
- Maintenance needed



8. Packing list

•	HDMI Encoder 8x	1 pcs
•	HDMI Cable	8 pcs
•	ASI cable	1 pcs
•	Power cord	1 pcs

www.zenitel.com

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