





MULTI CHANNEL MODEL IDH2-9200 D/3T2S2C SDI 1265

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1. Introduction

Telelynx introduces a high-performance, high-density Ultra-High-Definition (UHD) encoder with a modular design based on advanced H.265 (HEVC) compression. It incorporates the state-of-the-art hardware compression technologies to deliver multi-standard, multi-profile and multi-channel capabilities for cable, satellite, and terrestrial broadcasting applications.

IDH2-9200 series of encoder features a high density to allow for 5 encoding modules, where each module has one 4K(UHD), or four SD/ HD encoding channels. This makes one chassis to support 4 to 20 channels of H.265/HD encoding, or 1 to 5 channels of H.265/HEVC encoding, depending on the number of plug-in modules. It supports SDI inputs, PSI/SI processing, multiplexing and re-multiplexing TS outputs over DVB-ASI and IP.

This encoder also supports Web browser and management for local and remote management and maintenance. User can browse the basic information and modify the system configuration via the front panel. User can configure all parameters via the IE Browser.

It also supports dual power supply.

- Number of HD encoders: 4,8,12,16, or 20.
- Number of UHD encoders: 1,2,3,4, or 5.
- Number of multiplexer: 1 (default).
- 1RU modular design, supporting up to FIVE pluggable encoding modules
- Supports SDI input
- Supports dual power supplies
- H.264, H.265, MPEG-2, UHD, HD, SD video encoding
- MPEG-1 Layer II, MPEG-2 AAC, Linear PC encoding

- MPEG TS-over-UDP/RTP output, supporting SPTS/MPTS mode
- MPEG TS re-multiplexing, PCR and PSI/SI processing
- Supports VBR/CBR video encoding
- Up to 80Mbps of video encoding rate for each channel
- Web management for remote management and maintenance



2. Products Illustration

2.1 The front panel:

•	FF TELELYNX Integrated Digital Headend	POWER KB LOCK STATUS COMM		▲ ▶ ○ĸ ESC DV3 ▼ IDH2 9200 Series	•
0	8	O POWER	(0
	8				0
		Fig. 2.1 Fr	ont Panel	6 7 8	

- 1 Indicator of Power
- 2 Indicator of Keyboard Lock
- 3 Indicator of Status
- 4 Indicator of Network Communication
- 5 LCD display
- 6 Direction Key
 - † Up or Increase
 - ↓ Down or Decrease
 - ← Left
 - → Right
- 7 Ok to confirm
- 8 ESC to exit or cancel



2.2 The rear panel:



Fig. 2.2 Rear Panel

1	—	Grounding point
2		Power socket and switch
3	—	SLOT 4, 2 Channel HD Encoder Card
4		SLOT 5, 2 Channel HD Encoder Card
5		ASI Output 1
6		ASI Output 2
7		TS IP Port, RJ45, 100 Base-T Ethernet connection port
8	—	Control Port, RJ45, 100 Base-T Ethernet connection port
9		SLOT 3, 2 Channel HD Encoder Card
10	—	SLOT 2, 2 Channel HD Encoder Card
11	_	SLOT 1, 2 Channel HD Encoder Card



2.3 Installation

1, This product should be mounted horizontally, and grounding or earthing mounted devices should be maintained reliably.

 2_{\sim} Exactly connect your power supply, signal source and other equipment to this product.

 $3\,{}_{\sim}$ If you want to use the Head-end Netmanager, Please connect RJ45 to your network.

4. Please check out the standard of power before you power on this product.



3. Operations via Keyboard

3.1 Basic Operations

Turn on the power switch after checking the system connections. The following information will be displayed on screen:

IDH2-9200 V3.60 SN:131003602001

The initial status of the keyboard is locked, and you have to unlock it before operation. To unlock it, please press "OK" key, "OK" key, "ESC" key and "ESC" key sequentially and promptly. The keyboard may also be locked after it has not been operated for a certain period of time.

After unlocking, press " \uparrow ", " \downarrow " keys to move around the main menu. Press " \leftarrow "," \rightarrow " keys to move around the sub-menu. Press "OK" key to enter the selected sub-menu. Press "OK" key to modify parameters of the selected item.

Available values of parameter will be flashing and can be selected by " \leftarrow ", " \rightarrow " keys when you modify the item. In case of a continually changeable parameter, use " \leftarrow ", " \rightarrow " keys to move the cursor and press " \uparrow ", " \downarrow " keys to change the value. Press "ESC" key to give up the modification.

After modification, press "OK" key to confirm it.



3.2 Menu Structure



The above chart illustrates the device menu tree. Parameters of Encoder, IP Setting, Communication and Advanced Setting can be modified. Alarm Info and Serial Number cannot be modified. You can browse and operate it via keyboard of the front panel.

3.3 Menu Definition

3.3.1 Slot Type

"Slot n Type n-1": n from 1 to 5, means slot 1 to slot 5, it will display the card type. Now it supportH.265/HEVC digital encoder card, H.264 HD digital encoder card, MPEG-2 SD analog encoder card, H.264 SD digital encoder card, H.264 SD analog encoder



card. If there is no any card inserted, it will display "Unknown Card".

"Slot 6 Type 6-1": Slot 6 is only support main card.

3.3.2 Host IP Setting

"IP Address 7-1" : IP Address setting.

"Subnet Mask 7-2" : Subnet Mask setting.

"Default Gateway 7-3" : Default Gateway setting. If your server which installed the head-end manager and the device are not in the same subnet, the device need transmit any data to server through the gateway.

"Server Address 7-4" : Server IP Address setting. The device will auto send the alarm info to this server.

"Physical Address 7-5" : Physical Address setting. It is a unique value in any network.

For examples:

1. The device and the server are in the same subnet:



2. The device and the server are not in the same subnet:





3.3.3 Advanced Setting

"Save Default configuration.	8-1":	Save	the	current	configuration	as	default
"Load Default saved.	8-2":	Recall	the c	default co	nfiguration whic	ch has	s been
"Restore initial configured by manufactor	8-3": 'y.	Recall	the	original	configuration	which	n was



4. Operations via IE Browser

4.1 Browse Device

Type the host IP Address in IE Browser, the manager will display. The Device Status, Name, hardware version, software version and IP Address are also showed as the picture.

System Information ⇒ Click Slot 1 HEVC-4K-SDI Slot 2	it get the system mation		
Slot 3	System Information		
Slot 4	Custom Information		
Slot 5	System Information –	Mada Mara	511.0400
Slot 6 Control Card		Mode Name	EU 6100
Save Default		Device Name	0864
Load Default		Hardware Version	2.0.2
Bostoro Ipitiol		Software Version	3.5.0
		IP Address	192.168.1.96
Svv Upgrade		Status	Abnormal Device status and
User Manual			Power 1 : Failed!
Web Site			

The left menu tree shows all slot card type and some advanced menu.



4.2 HEVC encoder card

Slot 1 to slot 5 are encoder cards. The left window will display the card type. It supports H.265H/HEVC digital encoder card, H.264 HD digital encoder card, MPEG-2 SD analog encoder card, H.264 SD digital encoder card, H.264 SD analog encoder card. If there is no any card inserted, it will display blank. Now let us see the H.265/HEVC encoder card setting.

STATUS	Channel A Apply Rese	t				
System Information	System Parameters					۲
Slot 1 HEVC-4K-SD Channel A Channel B Channel C Channel D	Mux Output Enable Encoder Mode Input Port	☐ 4K ULL SDI1~SDI4	>	Encoder Type System Bitrate	HEVC 70000	
Slot 2 Slot 3 Slot 4 Slot 5	Service ID PMT PID	11 111 113		TS ID PCR PID	1 112 114	
Slot 6 Control Card	Service Name	ServiceName11		Service Provider Name	ProviderName	
Load Default Restore Initial	Video Parameters					
SW Upgrade	Video Farameters					
User Manual Web Site	Input Resolution Output Resolution	No Signal 3840x2160-SQD	~	Input Framerate Output Framerate	60Hz 60Hz	~
	Frame Format	Progressive	~	Dit Darath	40	
	Output Mode	4:2:2 CBR	~	AVG Bitrate	60000	<u> </u>
	Max Bitrate	10000		Min Bitrate	0	
	GOP SIZE	04		IP Period	0	
	Audio Parameters					۲
	Audio Bitrate(kbps) Sample Rate	128 48kHz	~	Audio Format	MPEG-1 Layer II	~
	TS IP Parameters					۲
	Output Enable Source IP Source NetMask	 ✓ 192.168.2.96 255.255.255.0 		Protocol Source Port Source Gateway	UDP 2234 192.168.2.1	
	Destination IP	226.1.1.2		Destination Port	1234	



4.2.1 System Parameters

stem Parameters					
Mux Output Enable					
Encoder Mode	4K ULL	\checkmark	Encoder Type	HEVC V	•
Input Port	SDI1~SDI4	\checkmark	System Bitrate	70000	
Service ID	11		TS ID	1	
PMT PID	111		PCR PID	112	
VID PID	113		AUD PID	114	
Service Name	ServiceName11		Service Provider Name	ProviderName	

Mux Output Enable: User can select whether the program would be in mux channel. When the Checkbox is checked, this program would be in mux channel.

Encoder Mode: Specify Encoder Mode, support 4K ULL, 4K, 2K*4.

Notice: only Channel A can set this parameter

①4K ULL: 4K Ultra low-latency Mode, only support one channel Encoder.

2)4K: 4K Mode, only support one channel Encoder of HEVC or AVC.

 $32K^*4$: 4Channel of 2K Mode, up to support 2K (1920*1080).

Encoder Type: Specify Encoder Type, support HEVC, AVC and MPEG2.

Notice: only Channel A can set this parameter

①HEVC: H.265/HEVC Encode

2)AVC: H.264/AVC Encode

③MPEG2: MPEG-2Encode,up to support 1920×1080×60i

Input Port: Input port, support SDI, can not be set.

System Bitrate: The range is from 800 to 160000Kbps.

Service ID: Specify the Service ID(Program number) of the Program.



TS ID: Specify the Transport stream ID.

PMT PID: Specify PMT PID.

PCR PID: Specify PCR PID.

VID PID: Specify video PID.

AUD PID: Specify Audio PID.

Service Name: Specify Service Name, The max length is 20 Bytes.

Service Provider Name: Specify Service Provider Name, the max length is 20 Bytes.

4.2.2 Video Parameters

nput Resolution	No Signal	\sim	Input Framerate	60Hz	\sim
Dutput Resolution	3840x2160-SQD	~	Output Framerate	60Hz	~
Frame Format	Progressive	\checkmark			
Chroma Format	4:2:2	\checkmark	Bit Depth	10	\checkmark
Output Mode	CBR	\checkmark	AVG Bitrate	60000	
Max Bitrate	10000		Min Bitrate	0	
GOP Size	64		IP Period	8	
	<u>г</u> ,				

Input Resolution: Not editable, only display the input video resolution. If there

is no input signal, it displays "No signal input".

Input Framerate: Not editable, only display the input video Framerate.

Output Resolution: Specify the resolution of output video.



Output Framerate: Specify the framerate of output video.

Frame Format: Specify the frame format , support Progressive and Interlace.

Chroma Format: Specify the Chroma Format, support 4:2:2 and 4:2:0.

Converting from 4:2:0 to 4:2:2 isn't supported.

Bit Depth: Specify Number of quantizing bits, support 8bit and 10 bit.

8->10bit are not supported.

Output Mode: Specify the control method of the video rate control, support VBR and CBR.

AVG Bitrate: Specify the average video bitrate. The range is from 1000 to 40000Kbps.

Max/Min Bitrate: The maximal/minimal video bitrate, only valid in VBR mode. The maximal video bitrate is from 1500 to 80000Kbps, the minimal video bitrate is from 600 to 30000Kbps.

GOP size: Specify the length of each GOP.

GOP Size = a multiple of IP Period if IP Period = IBP GOP Size = a multiple of 2 if IP Period = IBBP GOP Size = a multiple of 3

IP Period: Specify the period of I,P picture.

If Encoder Type=HEVC, IP Period is set as an integer.

If Encoder Type=AVC or MPEG2, support IBBP(3), IBP(2), IPPP(1).



4.2.3 Audio Parameters

Audio Bitrate(kbps)	28 🗸	Audio Format	MPEG-1 Layer II 🗸 🗸
Sample Rate 48	8kHz 🗸		

Audio Bitrate: Specify the audio bitrate. There are 6 types of audio bitrate: 64, 128, 192, 256, 320, 384Kbps.

Audio Format: Specify the audio format. There are 3 types of formats: MPEG-1 Layer II, AAC-LC and LPCM.

Sample Rate: Specify the audio sampling rate, only support 48KHz.

4.2.4 TS IP Parameters

S IP Parameters				
Output Enable	\checkmark	Protocol	UDP	~
Source IP	192.168.2.96	Source Port	2234	
Source NetMask	255.255.255.0	Source Gateway	192.168.2.1	
Destination IP	226.1.1.2	Destination Port	1234	

- **Output Enable:** "Not Used" means disable this IP channel. Otherwise pass through the encoder channel. Only support SPTS.
- **Protocol:** The protocol of IP packet. There are two types, one is UDP, and the other is RTP.
- **Source IP:** A parameter of IP packet. It means the local IP address for this IP channel.
- **Source Port:** A parameter of IP packet. The value is from 1024 to 65534.
- **Source Netmask:** A parameter of IP packet. It means the NetMask for this IP channel.



Source Gateway: if the source and the destination are not in the same subnet, this parameter should be set correctly.

- **Destination IP:** A parameter of IP packet. Specify destination ip address of the IP packets.
- **Destination Port:** A parameter of IP packet. The value range is from 1024 to 65534.

4.2.5 Apply Parameters

Apply parameters of the channel		٤	STATUS		
Channel A Apply Reset	Reset par shown in	ameters that IE browser			•
Mux Output Enable Encoder Mode	✓ 2Kx4	~	Encoder Type	HEVC	~

Apply Parameters: click the Apply button to apply the Parameters of this channel.

Reset: click the reset button to reset the parameters that shown in IE Browser.

4.3 Main Slot Setting

Set the parameters of main control card, click 'Slot 6 control Card' to get the parameters of control card.

Slot 1 HEVC-4K-SDI	+	Host IP Parameters			
Slot 2 HEVC-4K-SDI Slot 3	+	Host IP	192.168.1.96		
Slot 4	+	+ Host NetMask + Host Gateway	255.255.255.0		
Slot 5	+		192.168.1.1		
Slot 6 Control Card	click it get the parameters of Control card		00-04-72-02-D0-C0	Í	
Load Default					
Restore Initial		ASI Output Parameters			



sic Parameters Apply	Reset			
lost IP Parameters				۲
Host IP Host NetMask Host Gateway Host MAC Address	192.168.1.96 255.255.255.0 192.168.1.1 00-04-72-02-D0-C0			
SI Output Parameters				۲
ASI OUT 1 ASI OUT 2	MUX ~]		
UX Output Parameters				۰
TS ID ON ID Output Bitrate	1 1 38000			
UX TS IP Parameters				۲
Output Enable	V	Protocol	UDP	•
Source IP	192.168.2.96	Source Port	2234	
Source NetMask	255.255.255.0	Source Gateway	192.168.2.1	Ì
Destination IP	226.1.1.11	Destination Port	1234	4

4.3.1 Host IP Parameters

Host IP Parameters: Means net manager controller port, including Host IP Address, subnet mask, gateway IP address and host Mac address.

Host IP Parameters		۰
Host IP	192.168.1.96	
Host NetMask	255.255.255.0	
Host Gateway	192.168.1.1	
Host MAC Address	00-04-72-02-D0-C0	_



4.3.2 ASI Output Parameters

User can select the source of the ASI output port. "Slot n-ChannelA/B/C/D" means SPTS, Mux means MPTS.

ASI Output Parameters			
ASI OUT 1	Slot 1A	~	
ASI OUT 2	MUX	~	

4.3.3 MUX Output Parameters

Specify the parameters of multiplexer channel.

The mux channel parameters are same as ASI output port and IP output port.

MUX Output Parameters			۲
TS ID	1	Transport stream ID of Mux output	
ON ID	1	🖒 Original Network ID of Mux output	
Output Bitrate	70000		

TS ID: Transport Stream ID of mux channel. The value range is from 1 to 65534.

ON ID: Original Network ID of mux channel. The value range is from 1 to 65534.

Output Bitrate: It means the output bitrate of multiplexer channel. It is same for ASI port and IP port.

4.3.4 Main TS IP Parameters:

MUX TS IP Parameters **Output Enable** Protocol UDP ✓ V Source IP 192.168.2.96 Source Port 2234 Source NetMask 255.255.255.0 Source Gateway 192.168.2.1 **Destination IP Destination Port** 226.1.1.11 1234

٩

This tab would display the IP parameters of multiplexer channel.



- **Output Enable:** "Not Used" means disable this IP channel. Otherwise the multiplexed stream will be output by IP. user can edit it in "Mux output Parameters".
- **Protocol:** The protocol of IP packet. There are two types, one is UDP, and the other is RTP.
- Source Port: A parameter of IP packet. The value is from 1024 to 65534.
- **Source Netmask:** A parameter of IP packet. It means the NetMask for this IP channel.
- **Source Gateway:** if the source and the destination are not in the same subnet, this parameter should be set correctly.
- **Destination IP:** A parameter of IP packet. Specify destination IP address of the IP packets.
- **Destination Port:** A parameter of IP packet. The value range is from 1024 to 65534.

4.4 Advanced Operations

4.4.1 Save Default

Save current parameters to device as default parameters.

Slot 6 Control Card
Save Default
Load Default
Restore Initial
SW Upgrade
User Manual
Web Site

Are	you	sure	to	save	default?
-----	-----	------	----	------	----------

Save



4.4.2 Load Default

Load default parameters as current parameters of device.

Save Default
Load Default
Restore Initial
SW Upgrade
User Manual
Web Site

Are you sure to recovery?

Reset

4.4.3 Restore Initial

Restore device to initial parameters setup when delivery.



Are you sure to restore initial?

Restore

4.4.4 SW Upgrade

Update device's firmware to add new functions or fix bugs.



5. Technical specification



IDH2-9200 Series Specifications				
		up to 20 x SDI Input, BNC-Female		
	CDI Lanut	SMPTE-435M/SMPTE ST2036-3/SMPTE 424M		
	SDI input	(3G-SDI)/SMPTE 274M/SMPTE 292M		
Input		(HD-SDI)/SMPTE 259M-C(SD-SDI)		
		1*Main Module for Management, TS IP, ASI outputs.		
	Module	4*SDI Input per Module		
		up to 5 slots of pluggable encoding modules		
		1 x 100/1000 Base-T Ethernet (RJ-45)		
	IP Output	IP output bit rate: Up to 80 Mbps/CH@UHD		
		20 Mbps/CH@HD		
Output	A SI Output	2*ASI OUT		
	ASI Output	ASI output bit rate: Up to 160 Mbps		
	IP Encapsulation	MPEG TS-over-UDP/RTP		
	MPEG TS Mode	SPTS/MPTS		
		H.264(AVC), H.265(HEVC), MPEG-2		
	Encoding Formata	Resolution: 3840x2160x60p/50p (4K/UHD) ,1920 x		
Video	Encoding Formats	1080 x 60p/50p ,1280 x 720 x 60p/50p ,1920 x 1080 x		
Video		60i/50i(AVC, MPEG2),720 x 480 x 60i,720 x 576 x 50i		
Encoung	Encoding Rate Mode	CBR, VBR		
	Video Encodina Data	Up to 80 Mbps/CH@UHD,		
	video Encouring Kate	20 Mbps/CH@HD		
	Encoding Standards	MPEG-1 Layer 2, MPEG-2 AAC , Linear PCM		
Audio	Operation Mode	Stereo		
Encoding	Sample Rate	48 kHz		
	Audio Encoding Rate	64/96/128/192/256/384 kbps		
Network	Interface	1 x 100/1000 Base-T Ethernet (RJ45)		
Management	Management	Web management		
Physical and		110 - 240 VAC, 50/60Hz, dual power supply		
	power Suppry	20W to 50W (one to five modules)		
	Operating Temperature	$0^{\circ}C$ to $+45^{\circ}C$		
Power	Storage Temperature	-10°C to +70°C		
	Product Dimensions	48.3 cm (W) x 33.0 cm (D) x 4.4 cm (H)		
	Product Weight	Approx. 7Kg		

